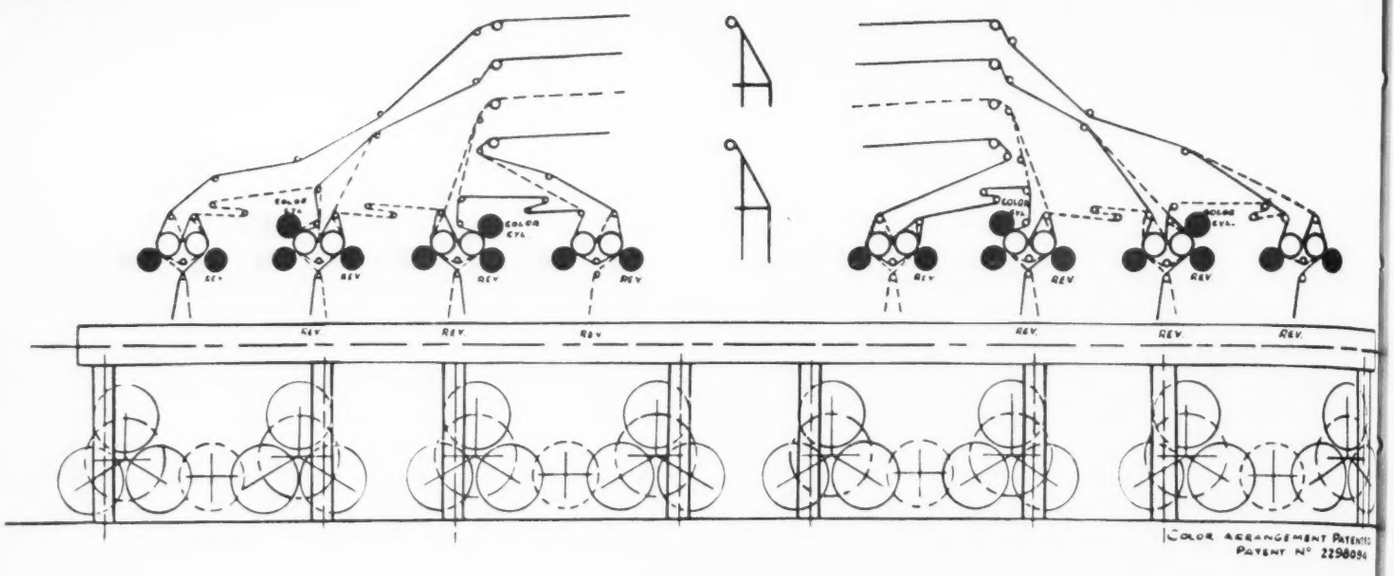
# PRINTING EQUIPMENT Engineer

MAY 1946

# COLOR... the Hoe Color-Convertible WQ




This diagram shows (in solid lines) typical leads for a 48-page straight run product with eight pages in full color — three colors and black — and eight pages in one color and black • Indicated in dotted lines are optional leads which provide for the placement of color on other pages, yet maintaining simple, direct leads in all cases • The following brief listing gives an idea of some of the other color product possibilities inherent in a press similarly equipped.

### STRAIGHT RUN PRODUCTS

64 page paper with 16 pages in one color and black

56 page paper with 12 pages in one color and black and 4 pages in three colors and black

48 page paper with 8 pages in one color and black and 8 pages in three colors and black

40 page paper with 4 pages in one color and black and 12 pages in three colors and black

32 page paper with 16 pages in three colors and black

### COLLECT RUN PRODUCTS

Typical collect products may be run with the following combination of color pages:

80 pages (collect)

24 pages with one color and black
8 " " three colors and black
48 " " black only

— OR —

16 pages with one color and black
16 " " three colors and black
48 " " black only

— OR —

8 pages with one color and black
24 " " three colors and black
48 " " black only

64 pages (collect)

32 pages with three colors and black
32 " " black only

Any Hoe Color-Convertible Press can have greater or modified color-providing facilities when it leaves the factory or, thanks to thorough advance planning, they may be added—or expanded—at any future time • Truly, the New Hoe Color-Convertible Press provides for maximum color growth at minimum additional investment

## R. HOE & CO., INC.

**910 EAST 138TH STREET, NEW YORK 54, N. Y.**

*Branches:* BOSTON • CHICAGO • BIRMINGHAM • SAN FRANCISCO

# *This is the cutter that "does the job" in the Premier Rotary Shaver*

*Working newspaper mechanical executives and expert manufacturing engineers designed and developed this special cutter used in the Premier Rotary Shaver . . . Its rugged construction and precision performance have been proved during the many years Premiers have been in operation on all types of flat shaving jobs . . . It is made from specially selected steel, fabricated in one solid piece by special machinery built for the purpose, and is heat-treated, tempered and accurately ground to a perfect cutting edge . . . It is mounted in the machine by rigid pedestal supports, free from vibration or springing, and rotates on "plug" centers in pre-loaded, anti-friction bearings, eliminating any play and guaranteeing minimum wear . . . The cutter can be changed in ten minutes, and one extra cutter is included with each new machine . . . The time, thought and careful craftsmanship that go into this special cutter typify the precision-engineered construction throughout the machine that makes the Premier Rotary Shaver a popular and dependable favorite of leading newspaper and electrotype plants throughout the country . . .*

## STA-HI CORPORATION

**1020 Crocker Street** STA-HI **Los Angeles 21, California**

# WHEN

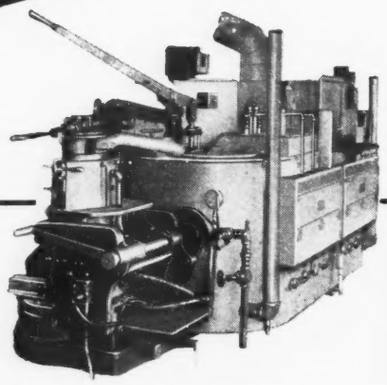
**THE BUSINESS MANAGER SQUAWKS AT FUEL BILLS**

**YOU'D LIKE TO CUT DROSS LOSSES**

**YOU'RE SICK OF "NURSING" METAL TEMPERATURES**

# THEN

## follow over 200 publishers to KEMP 'immersion-fired' melting



**THIS POT CUT DROSS LOSSES 18%**

. . . for a large eastern daily which operates two stereo rooms in two plants—one with KEMP immersion-*gas*-fired pots (like the 10-ton unit shown), the other with electrically-heated pots. Because the spent products of combustion from a KEMP pot blanket the metal, the stereo room on gas boasts 18% less dross per 10,000 plates (15,500 lbs. per year versus 18,250 lbs.). Here's clear-cut proof of just one of KEMP's five advantages in stereo and electro work: closer temperature regulation, over 500 pots in service, 40% guaranteed savings in energy cost, less dross, better working conditions.

The stereotyper or electrotyper who melts with KEMP "immersion-firing" profits three ways.

*First, he saves money in fuel bills.* KEMP will guarantee a full 40% saving over existing methods—because electrical power (on the average) costs that much more than gas, and because other gas-fired melting techniques are that much less efficient.

*Second, he enjoys better casting results.* Metal is held at temperature more precisely. Temperature recovery is more rapid after cold pigs or "tails" are added. The heating units are of large area, and *inside* the pot rather than outside.

*Third, he uses less metal*—because dross-loss is less. The flue gases resulting from combustion sweep over the top of the molten metal and thereby keep air away.

That's why over 200 publishers praise more than 500 KEMP installations. Let us show *you,* with letters and reports from men you know well.

**KEMP OF BALTIMORE**

PRECISION CARBURETION + ADAPTED COMBUSTION FOR INDUSTRY'S HEAT-USING PROCESSES
ATMOSPHERE GENERATION & ADSORPTIVE DRYER SYSTEMS FOR PROCESS CONTROL AND PROTECTION

JMLco K-El pe

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405 E. Oliver Street, Baltimore 2, Md.

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POSITION _____

COMPANY _____

PLACE _____

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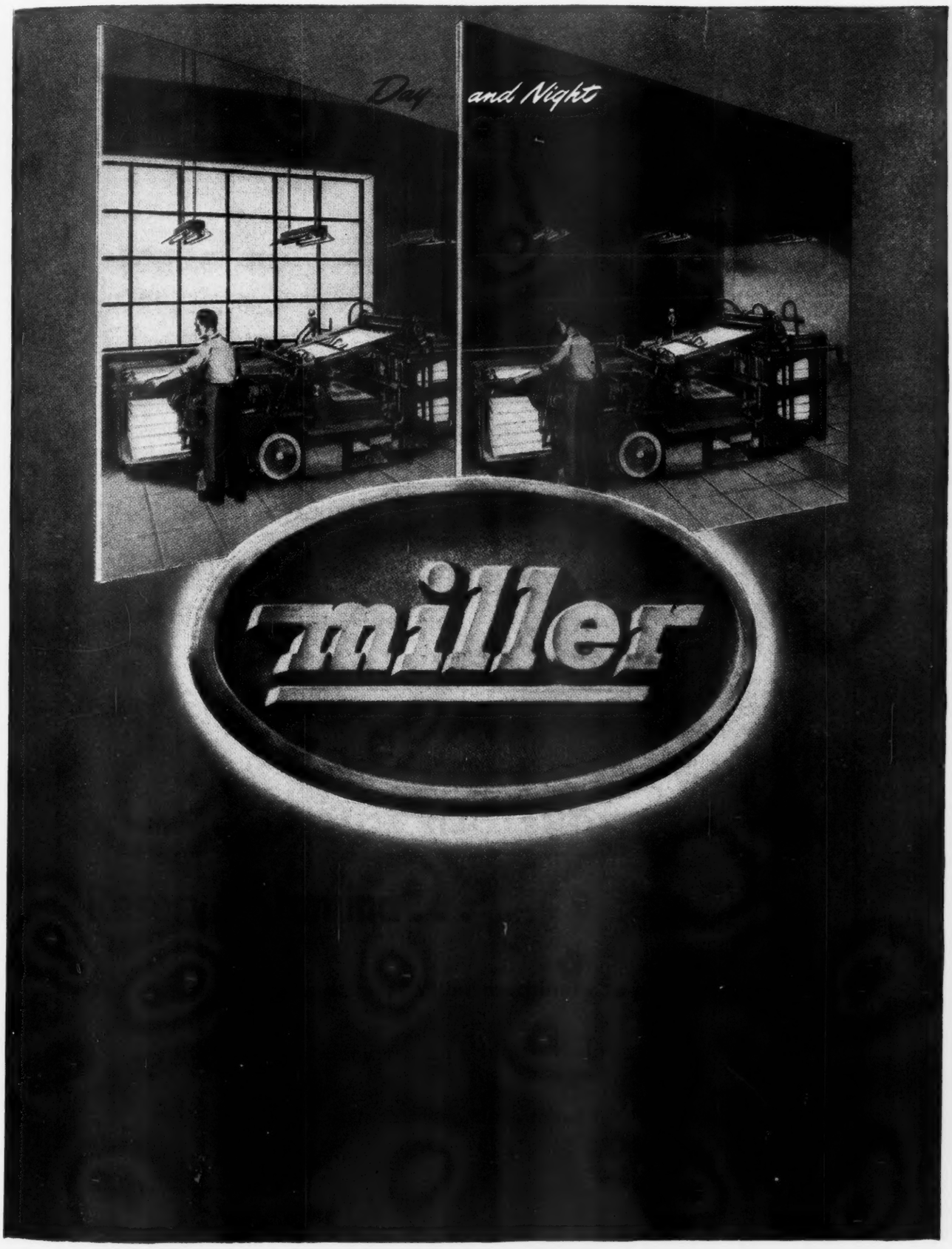

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MANUFACTURERS OF

PRINTERS' ROLLERS

LITHO-OFFSET ROLLERS

RUBBER
NON-MELTABLE
FABRIC-COVERED
ROTOGRAVURE

# ROLLERS

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COMPOSITION
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GRAINING

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COMPOSITION; SYNTHETIC RUBBER;
NATURAL RUBBER; VULCANIZED OIL

## FOR EVERY PRINTING PURPOSE

WE ARE NOW MAKING COMPOSITION ROLLERS

## FOR SUMMER USE

## SHIP YOUR OLD ROLLERS

TO FACTORY MOST CONVENIENT TO YOU

FACTORIES

| | | | |
|---|---|---|---|
| ATLANTA 3 | DES MOINES 2 | KALAMAZOO 12 | OKLAHOMA CITY 6 |
| CHICAGO 5 | DETROIT 10 | KANSAS CITY 6 | PITTSBURGH 3 |
| CLEVELAND 14 | HOUSTON 6 | MINNEAPOLIS 15 | ST. LOUIS 2 |
| DALLAS 1 | INDIANAPOLIS 2 | NASHVILLE 3 | SPRINGFIELD, O. |

*Roller Makers since 1847*

# PRINTING EQUIPMENT *Engineer*

**Volume 72** **Number 2**

A technical publication for the mechanical executive responsible for printing production, equipment and supplies in the commercial, magazine, private plant and daily newspaper field.

**PRINTING EQUIPMENT Engineer,** Published monthly at **1276 West Third St., Cleveland 13, Ohio,** Copyright 1946 by Willsea Publishing Co.

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Subscription price per year, $3.50 in advance in U. S. A. Single copy current issues 35c; feature issues $1 per copy; December Equipment and Supplies Catalog Issue $1 per copy. Subscriptions in foreign countries as permitted for duration $4.50 (U. S. currency) in advance. Canadian printing plant mechanical and production executives receiving Printing Equipment Engineer under CCA regulations will be charged $1 postage per year in advance to cover additional postage to Canada.

Member Controlled CCA Circulation Audit

Printed in U.S.A.


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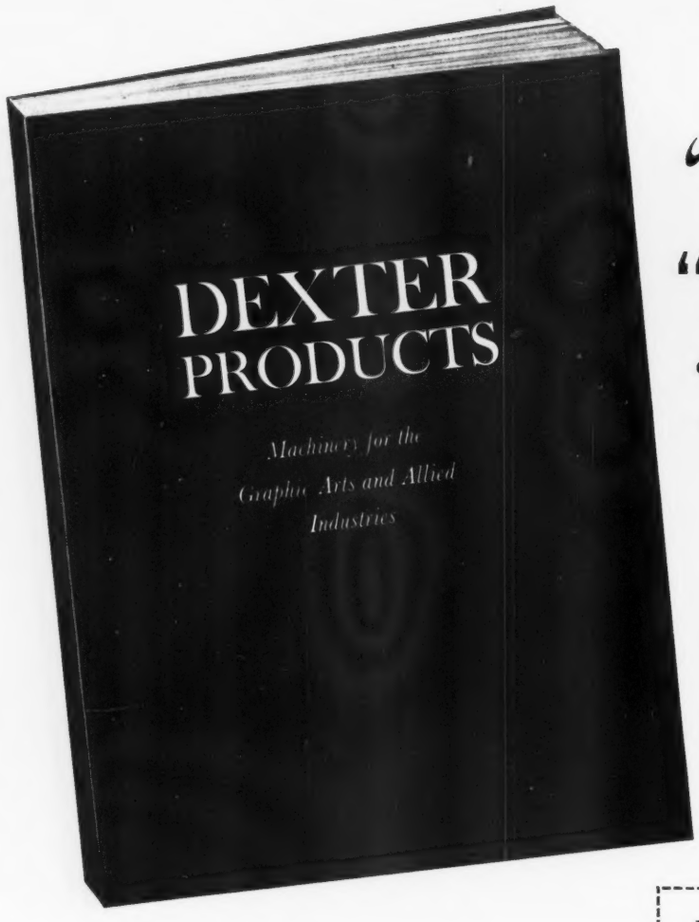
**PRINTING EQUIPMENT** *Engineer*

**1276 West 3rd Street, Cleveland 13, Ohio**

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describes and illustrates the complete Dexter line, including equipment of our own manufacture as well as the products of

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In the Post-War Reconstruction Period many new firms and hundreds of new employees in long established Printing and Binding Companies will want to become acquainted with the newest and best equipment available for high speed economical production.

The 80 page book, "DEXTER PRODUCTS" will illustrate and describe to you and your office and plant personnel the Dexter and Christensen Press Feeders, Dexter and Cleveland Folders, Christensen and Boston Stitchers, Christensen Bronzers and Varnishers, Brackett Trimmers, Martin Gathering and Covering Machines and other types of equipment built and distributed by Dexter.

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**Pearl River New York**

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**DEXTER FOLDER COMPANY**
**Pearl River, N. Y.**

*Please send us your New Book*
**"DEXTER PRODUCTS"**
*We will be interested, Post-War, in the following equipment:*

**FOR OUR BINDERY**

Quantity

....Dexter Jobbing Folder (44x58).
....Dexter Double Sixteen Folder (42x56).
....Dexter Quadruple Folder (42x56).
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....Cleveland M-S Folder (25x38).
....Cleveland OO Folder (22x28).
....Cleveland O-S Folder (19x25).
....Cleveland W Folder (14x20).
....Christensen Gang Stitcher.
....Boston Book Stitcher.
....Brackett Trimmer.
....Kast Inserting Machine.
....Martin Gathering and Covering Machine.

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....Christensen Continuous Press Feeder.
....Dexter Carboard Press Feeder.
....Christensen Bronzer.
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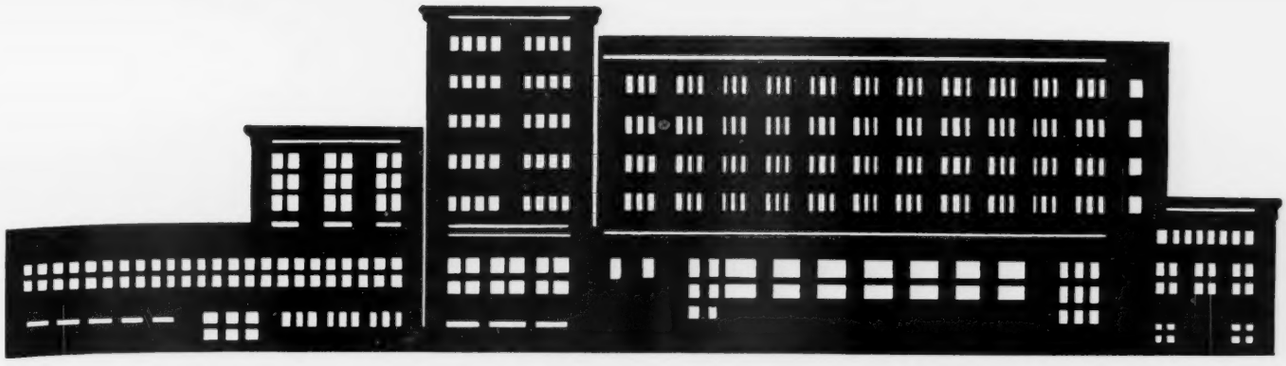
(Dexter Press Feeders are now furnished with Miehle Presses as complete units.)

NAME.....

ADDRESS.....



# Ludlow Karnak

Ludlow Karnak has come to be one of the most popular typefaces in general use today. Basically sound, this typeface family not only meets present-day needs, but it is one of those that will be here tomorrow.

Correctly designed, Ludlow Karnak combines dignity with emphasis, and distinctive style with power. Those who know type characterize it as extremely legible, and its wide use for advertising display, commercial and heading composition confirms its popularity.

Available in nine useful series, its versatility ranges from quiet forcefulness of Karnak Light or Intermediate to the solid smashes delivered by Karnak Black and Black Condensed. The latter is also supplied in large price figures and poster alphabets up to 144 point.

Let us send you showings of the Ludlow Karnaks—no obligation, of course.

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*Intermediate Italic*

**Medium** · Obelisk

**Black Condensed**

***Black Condensed Italic***

***Black Italic***

**Black**

## Ludlow Typograph Company 2032 Clybourn Ave., Chicago 14

# KEEPING IN TOUCH

PREPARED BY INTERNATIONAL PRINTING INK DIVISION OF INTERCHEMICAL CORPORATION • MAY, 1946

# PRIZE WINNERS ANNOUNCED IN IPI TENTH ANNIVERSARY ESSAY CONTEST

RICHARD ORANSKY
*Winner of the Tenth Anniversary Special Award*

## New Englander Takes Special Anniversary Award; Refugee Youth Also Places High Among 6,000 Entrants

Prize winners in the Tenth Annual Essay Contest, in which more than 6,000 students of printing in the United States and Canada competed, have just been announced by Fred Hartman, Educational Director of the National Graphic Arts Education Association, in cooperation with International Printing Ink, sponsors of these annual essay contests. Subject of the contest was, "Printing and World Peace".

Winner of the Tenth Anniversary Special Award was Richard Oransky, 18 year old senior of Portland High School, Portland, Me. A student of Industrial Arts he also is interested in radio and is already credited with 38 weeks of various teen-age news and variety shows broadcast by radio station WGAM.

First prize in the regular contest went to 17 year old Frank Brenner, of the New York School of Printing. Frank came to the United States via wartime England in 1943. At the age of ten Frank escaped from Nazi Germany to Great Britain where he experienced as many as twenty-one air raids in one day.

FRANK BRENNER

### Canadian and Brooklyn Youths Each Take Two Prizes

Sidney G. Simpson, of the School of Graphic Arts in Montreal, Canada, whose essay placed second, also won first prize for producing the best printed entry. He intends to become a printer when his education is completed.

Third prize winner was Julius Kieves, 18 year old student at Brooklyn Technical High School. He, too, is a double winner. In addition to winning third prize he placed fifth in the competition for the best printed essay.

Julius intends to enter Cornell next fall to study electrical engineering.

Fourth prize went to Chandler R. Meloy of the John H. Francis Polytechnic High School, Los Angeles, California, and John Randolph of the Gerstmeyer Technical High School, Terre Haute, Indiana, was recipient of fifth prize. Five dollars in Savings Stamps was awarded to each of the 25 runners-up.

### "Best Printed Essay" Awards

First prize for the Best Printed Essay went to Sidney G. Simpson, School of Graphic Arts, Montreal, Canada, second prize to Catherine Ross Sheppard, N. R. Crozier Technical High School, Dallas, third prize to Ernest Schiff, Murrell Dobbins Vocational School, Philadelphia, fourth prize to Barbara Dalton, J.C. Murphy Junior High School, Atlanta, and fifth prize to Julius Kieves, Brooklyn.

SIDNEY G. SIMPSON

## Prominent Men Act as Judges

Serving for the tenth consecutive year as Chairman of the judging committee was Harry L. Gage, Vice President of the Mergenthaler Linotype Co. He was assisted by such outstanding men as C. R. Counquergood, President, Canada Printing Ink Company, Ltd.; Major George Fielding Eliot; W. E. Griswold, Executive Director, Lithographic Technical Foundation, Inc.; and Frederick J. Libby, Executive Secretary, National Council for Prevention of War.

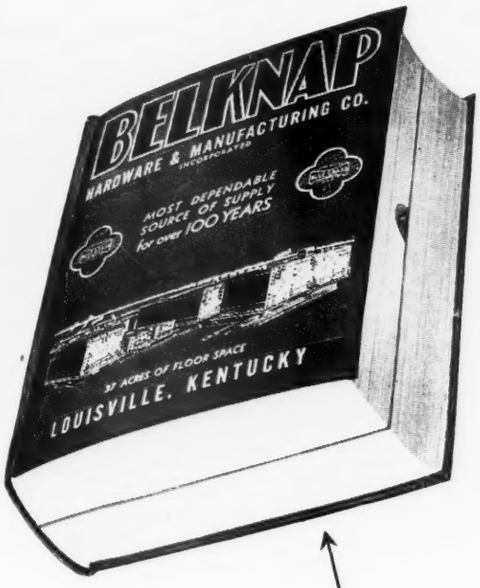
## Ohio School Wins Silver Cup

The Silver Cup for the school submitting the essay most attractively printed in color went to Timken Vocational High School, Canton, Ohio. Winner of the Silver Cup in previous contests, this school has usually placed high in all phases of the competitions.



When writing the advertiser please mention PRINTING EQUIPMENT *Engineer*—May 1946

# THE MONOTYPE




**An Example**

This commercial catalog of more than 3500 pages — one of the largest in the world — was entirely set on the Monotype

Monotype Single-Type Composition

*Is Best*

For Use In All Classes of Printing

**IS SPECIALLY ADAPTED TO**

# CATALOG PRINTING

*

Because of its efficient application to the production of rule-and-figure and tabular composition of all kinds the Monotype Typesetting Machine is extensively used in the setting of commercial and industrial catalogs distributed in the United States and in Canada — whether printed by letterpress, lithography, offset or by gravure.

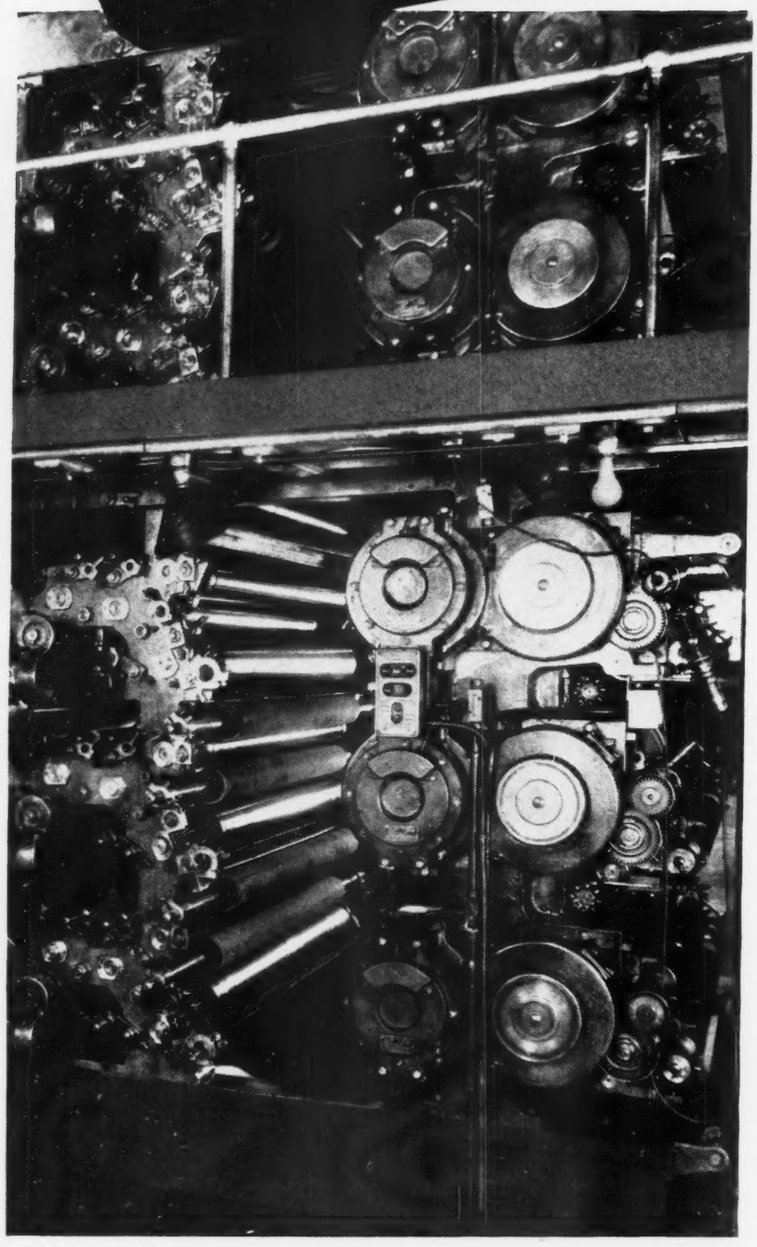
*

## LANSTON MONOTYPE MACHINE COMPANY

MONOTYPE BUILDING, TWENTY-FOURTH AND LOCUST STREETS, PHILADELPHIA 3, PENNA.

Composed in Monotype 20th Century Family and Monotype Artscript, No. 225

# USE DAYCOS



## NOW a roller built specifically for newspaper presses

Yes, Dayco rollers are not only built for newspaper presses, but they can be built specifically for *YOUR* newspaper presses. Just tell us what degree of softness you want, and any other specifications you desire, and the Dayco rollers that you will put on your presses will give you years of trouble-free service. You'll find, too, they'll save you time and money . . . *time* because they require less grinding and no adjustment when presses are set to roll . . . *money* because they give longer service than ordinary rollers. Dayco rollers can help you produce top printing quality at highest speeds and under any condition of temperature and moisture because, since 1919, Dayton Rubber has built hundreds of thousands of printing rollers . . . of natural and synthetic rubber. That's experience that can mean time and money saved for you . . . and top-quality work. Get full information by writing:

**THE DAYTON RUBBER MANUFACTURING CO.**
**DAYTON 1, OHIO**

**Latin American Representative:** National Paper and Type Company, 120 Wall St., New York, N. Y.

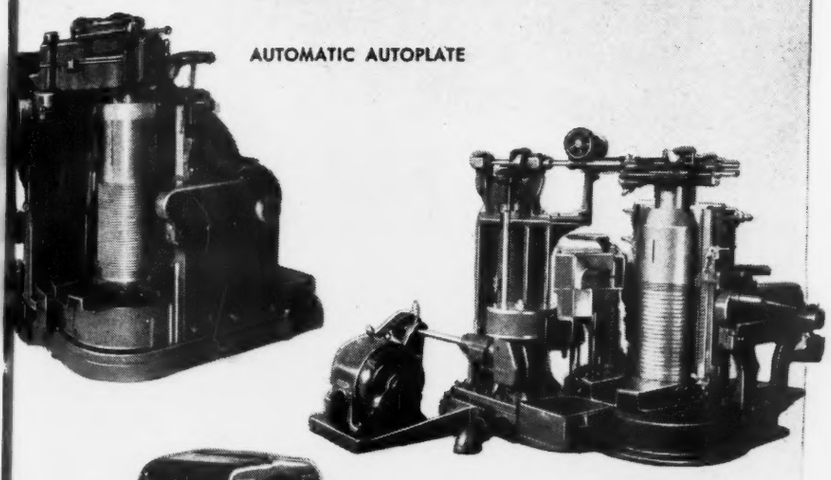
**Canadian Representatives:** Manton Brothers, Ltd., Toronto — Winnipeg — Montreal — Vancouver.

# Dayton Rubber

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

# WOOD AUTOPLATE EQUIPMENT

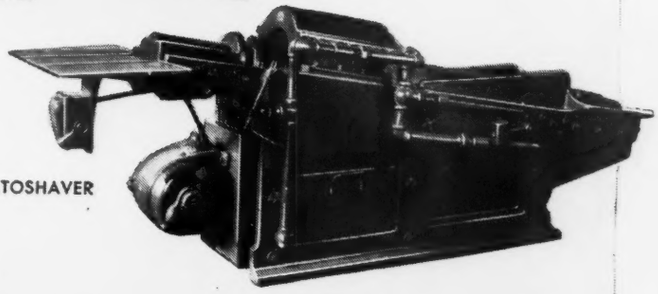
## WOOD STANDARD AUTOPLATE EQUIPMENT



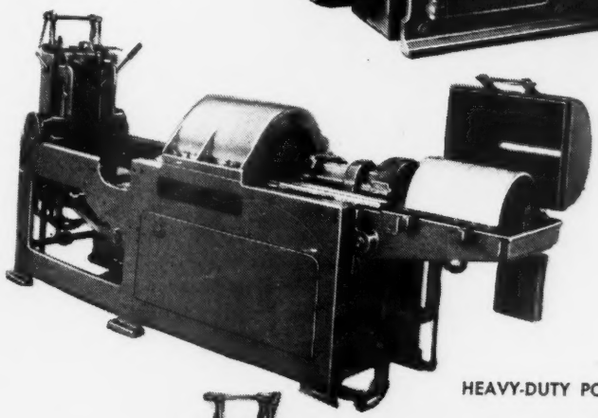
AUTOMATIC AUTOPLATE

JUNIOR AUTOPLATE

HEAVY-DUTY AUTOSHAVER

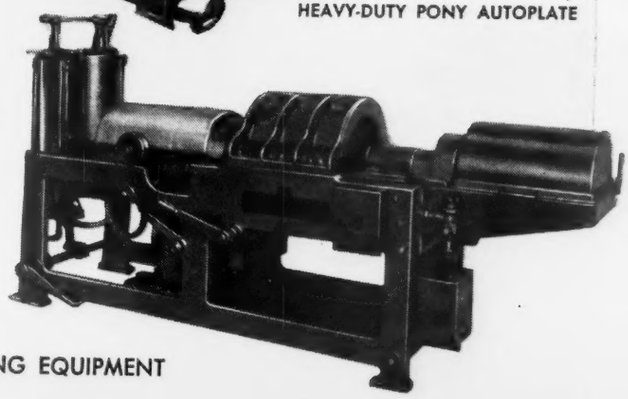


STANDARD AUTOSHAVER



HEAVY-DUTY PONY AUTOPLATE

NDARD PONY-AUTOPLATE



SO VACUUM CASTING EQUIPMENT

We know the trade is thoroughly familiar with the WOOD line of AUTOPLATE and associated equipment. Over a period of years it has proved itself many times over—under the abnormal conditions experienced during the war—its merit has been doubly verified.

Four years of producing materials of war solidly tied up our engineering and production facilities. With this pressure removed, another has immediately taken its place—the urgency of supplying AUTOPLATE equipment.

Realizing that this emergency does exist, WOOD has geared itself, and is in a position to supply the Standard line of AUTOPLATE and associated equipment that has so ably served you in the past.

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**MACHINERY CORPORATION**
**PLAINFIELD • NEW JERSEY**

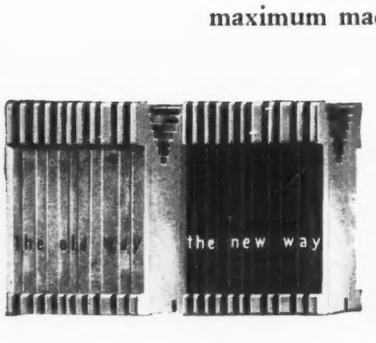
**NEW YORK OFFICE**
**501 FIFTH AVENUE, NEW YORK 17, N. Y.**

Wood
NEWSPAPER
MACHINERY

# *In a Nutshell*

## HERE'S WHAT BLACK & WHITE OFFERS

1. Matrix Contrast Service reduces errors approximately one-third.
2. Enables linecasters to "see what they set" without eyestrain.
3. Errors can be corrected before line is cast.
4. The matrices you now own are treated the Black & White way in your plant by trained crews.
5. New matrices are processed at our nearest service station before delivery to you.
6. Regular servicings include the thorough cleaning of matrices.
7. Clean matrices save time and trouble for the machinist, give the operator a faster, more dependable keyboard response, and help to maintain maximum machine output.




Write today for complete information to Matrix Contrast Corporation Sole licensees of the Percy L. Hill Matrix Contrast Patents Nos. 1,466,437 and 1,796,023, Empire State Building, New York 1, N. Y. European Agents: Funditor, Ltd. 3, Woodbridge Street, Clerkenwell Green, London, E. C. 1.

*Matrix Contrast Service*

# The Curling of Lithographic Papers

**ROBERT F. REED***

**Lithographic Technical Foundation. Paper delivered before the Technical Association of the Pulp & Paper Association, Commodore Hotel, New York, N. Y., February 1946.*

THE CURLING OF
LITHOGRAPHIC PAPERS

*Abstract:*

There are three fundamental types of paper curl: (1) Inherent curl, built into or acquired as a result of improper manufacture or handling; (2) Moisture curl, caused by non-uniform moisture distribution, or by the presence of too much or too little moisture; (3) Structural curl, caused by changes in structure of the paper. These types of curl, the paper properties which aggravate them, and their occurrence in lithographic operations are discussed, together with their identification and methods of prevention.

CURLING, in one form or another, is a constantly recurring problem in the handling of lithographic paper and in the use of lithographed products. It assumes various forms, interferes with production in various ways, and, in many cases, detracts from the quality and usefulness of the finished article.

In the pressroom, curly paper does not feed or jog properly, and causes press stoppages and register trouble. Sheets that have been once through the press are often difficult to run through a second or third time because of curl. Printed labels and wrappers sometimes curl in such a way that they will not work properly in labeling and wrapping machinery. Often it is difficult to determine the cause of the curl, and whether the fault lies in the paper or in a lithographic operation. And, without correct diagnosis, remedial measures cannot be taken with any assurance of success.

When curling trouble occurs it is often blamed on the paper without taking into consideration the conditions to which the paper has been subjected in producing the job. The paper may or may not be at fault, but, in many cases, no justifiable conclusion can be drawn and no satisfactory remedy found without reliable knowledge of paper structure and properties and their reaction to moisture and to the forces exerted on the paper in lithographic operations. This discussion is an attempt to analyze and classify the various types of curl encountered by lithographers, and to suggest, where possible, practical remedies and preventive measures.

### Structure of Uncoated Paper

The structure of paper is determined by the particular materials and forces that enter into the paper making operation. The pulp used may be composed of long or short fibers, or a mixture of both. It may be weakly or strongly beaten, and the action of the beater may be principally to cut the fibers into short lengths or to bruise, shred, and hydrate, without shortening them. The paper machine may be run fast or slow and with more or less crosswise shake of the wire, conditions which determine the amount of "crossing" of fibers. The extent to which the web is pressed while wet, and the degree of calendering it receives when dry, together with degree of beating of the pulp, determine the compactness or density of the finished paper.

Paper, therefore, is a more or less porous felt, the pores or voids of which sometimes amount to half its total volume. It has the characteristics of grain, two-sidedness, and density, all of which contribute to the production of curl under certain definite conditions. In fact the current method of measuring "curling tendency" make use of the effects of changes in moisture content on the structure of paper in such a way that these three characteristics are the controlling factors.

When the Bureau of Standards Curl Sizing Tester[1] is used, the specimen is wetted on one side and maximum degree of curl is attained when the moisture has penetrated halfway through the paper. In this method grain and density are the controlling factors. When the Gurley-Witham Curl and Shrinkage Tester[2] is used, the specimen is strongly dried to produce curl, and the controlling factors are two-sidedness and density. Actually, grain and two-sidedness are related in such a way that correlation between the results obtained with these two instruments is very good.

But there is another structural characteristic which is an important cause of curl. This characteristic is the presence of residual unrelieved stresses which may be likened to the stresses in metal or glass that has not been annealed. Most machine-made papers are dried under tension so that practically all shrinkage takes place in the cross direction. As the web dries, therefore, the individual fibers are stressed in the machine direction and remain in a stressed condition in the dried web. This stressed condition of the fibers is probably still further increased by calendering.

[1] National Bureau of Standards Research Paper RP 1522, *Measuring the Degree of Curl of Paper*, by Frederick T. Carson and Vernon Worthington.

[2] *The Gurley-Witham Curl and Shrinkage Tester*, Paper Trade Journal, 111, No. 22, November 28, 1940.

The presence of unrelieved stresses can easily be demonstrated by moistening a sheet of paper and allowing it to dry again to its original moisture content. Measurements will show that this treatment has caused the sheet to become shorter in the machine direction and sometimes also in the cross direction as a result of relaxation and readjustment of the fibers to reduce stresses to a minimum. It might be said that remoistening has annealed the sheet. Pole and loft-dried papers, which are not dried under tension, show less dimensional change when remoi tened and dried than machine-dried papers.

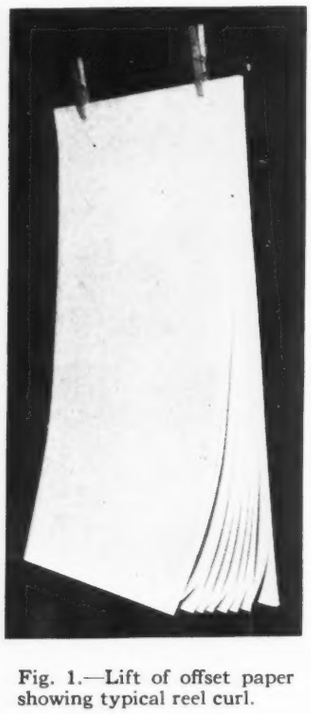


**Fig. 1.—Lift of offset paper showing typical reel curl.**

Machine-dried papers retain their unrelieved stresses under normal atmospheric conditions. But, if exposed to an atmosphere of sufficiently high relative humidity for the fibers to become limp and flexible, their stresses will be relieved and sheet dimensions will be altered.

### Structure of Coated Paper

The structure of coated papers is more complex than that of uncoated papers. Coated-1-Side paper is really two different sheets bonded or laminated together. Coated-2-Side paper is really a combination of three sheets. The body stock, being fibrous, is the "backbone" of the sheet and gives it its strength properties. The coating, which is non-fibrous, has little strength of itself but sufficient to affect the structural properties of the finished sheet, particularly two-sidedness. The fibrous body stock has grain, and therefore a greater expansivity in the cross direction than in the grain direction, with increase in moisture content. The coating has no grain and tends to expand or contract uniformly in all directions when its moisture content changes.

A Coated-1-Side sheet, therefore, has a condition of two-sidedness not present in machine-finished paper. This, however, does not necessarily make it more susceptible to curl. The coating is generally applied to the wire side of the body stock, the side which has the greater expansivity in the cross direction, and may actually reduce this expansivity while, at the same time, increasing the expansivity in the grain direction. Thus the coating may make the expansivity of the wire side more like that of the uncoated felt side and therefore reduce the curling tendency of the sheet.

What actually happens depends on the nature of the body stock and of the coating. If the body stock is hard and the coating soft, the curling tendency of the sheet will depend largely on that of the body stock. The harder the coating, however, the greater will be its influence on the curling properties of the sheet. It is the coating mills' problem to so balance the characteristics of the body stock and coating that the sheet will have a minimum tendency to curl.

A Coated-2-Side sheet generally has less tendency to curl than either Machine-Finish or Coated-1-Side paper. This is because of the stabilizing effect of laminating the body stock between two layers of coating of equal and uniform expansivity.

The characteristics of coated papers depend also upon the amounts of coating they carry. In modern machine-coated papers, carrying three or four pounds of coating per side per ream, the curling tendency is much more like that of the body stock than in enamel papers carrying 12 or 15 pounds of coating per side per ream.

### Primary Causes of Curl

A sheet of paper will be perfectly flat if the dimensions of its two sides in both the grain and cross directions are exactly equal. If it curls toward the felt side, this is because at least one dimension of the side is less than the corresponding dimension on the wire side. If it curls toward the wire side, at least one dimension of this side is less than the corresponding dimension of the felt side.

Various conditions can bring about differences in the dimensions of opposite sides of the sheet, and these will be discussed later on. The degree of curl produced, however, depends to a large extent on the structural characteristics of the paper—particularly its density. If it is soft and flexible, the sheet will tend to lie flat because of its own weight and curling will not cause serious trouble. On the other hand, if the paper is dense and rigid, any difference in dimensions of the opposite sides will cause a pronounced curl. And, since papers are invariably more rigid when their moisture content is low than when it is high, the drier they are the greater is their tendency to curl when these dimensional differences exist.

Two-sidedness contributes to curling since the greater its degree, the more susceptible the paper is to differential dimensional changes, other things being equal. The combination of a high degree of density or rigidity and extreme two-sidedness in paper gives it the greatest tendency to curl.

Both the Bureau of Standards' and Gurley methods of testing paper for curling tendency are useful in rating different papers according to "curliness" and in controlling this property in paper making. But, while the types of curl they produce and measure are often observed in the practical use of lithograph papers, they are not the only types of curl encountered. It is true that if any two papers, one of which has a greater curling tendency than the other, are handled under exactly the same conditions in the pressroom, the one with the greater curling tendency will cause more trouble than the other. But there are times when the less curly paper will cause trouble while the paper with the greater curling tendency will work satisfactorily. The reasons for this apparent paradox lie, of course, in the fact that the conditions of

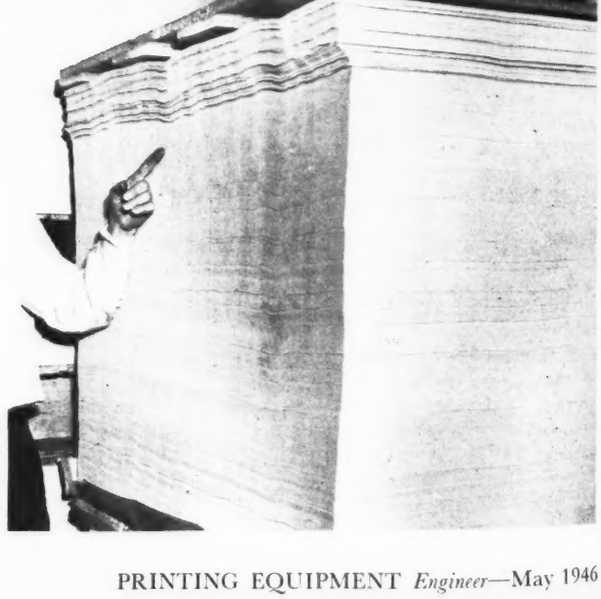


**Fig. 2.—Skid of paper showing wavy edges across the grain resulting from moisture pick-up.**

handling in the pressroom are different. Explanation of curl in any case, therefore, must take into consideration both the nature of the paper and that of the operations through which it passes to produce the finished lithographed product.

### Types of Curl

As already stated, the primary cause of curl is a difference in the dimensions of the felt and wire sides of the sheet. However, the types of curl observed in the daily handling of lithographic papers can be divided into three classes according to cause of such dimensional differences:

1. Inherent curl; curl that is built into or acquired by the paper as a result of improper manufacture or handling.
2. Moisture curl; curl due to non-uniform moisture distribution in the sheet, or to the effect of too much or too little moisture in causing dimensional differences between the felt and wire sides.
3. Structural curl; curl due to a change in structure of the paper resulting from a lithographic of finishing operation.

It must be understood, of course, that there are contributing factors which can aggravate or minimize curl regardless of its type. The primary contributing factor is density. But, since density is related to degree of hydration, expansivity, and porosity, it may be said that any one of these properties affects curl. A dense, highly hydrated paper will curl at the least provocation, regardless of cause, while a soft, porous paper, under much worse conditions, will remain practically flat.

*Inherent Curl.*—There are two principal types of inherent curl—"reel-curl" and "edge-set". Reel-curl, of course, results from sheeting paper too close to the center of the roll. It has two characteristics by which it is easily recognized. (I) it is always against the grain (axis of curl across the grain), and (II) it is never uniform from sheet to sheet, but shows up usually only in every fourth, fifth, or sixth sheet in the pile. Reel-curl is usually toward the felt side, but is sometimes toward the wire side, depending on the mill practice in sheeting from wind-up or rewound reels. It always appears on both ends of the sheets.

Reel-curl, if serious, can cause endless feeder trouble on the press, especially if the sheets curl up. The only possible remedy is to reverse the sheets on the feeder pile so that the curl is down. In fact the mill sometimes delivers paper wire-side up if reel-curl toward the felt side is evident.

"Edge-set" occurs in case-packed paper if the cases are not packed tightly and are stood for any length of time with the sheets resting on edge. This type of curl, unlike reel-curl, occurs on every sheet, but usually only on one edge. It may be either with or against the grain, depending on which edge was down. It can be avoided by the proper handling of cases in transit and in storage so that the sheets are always in a horizontal position.

*Moisture Curl.*—The most commonly encountered types of moisture curl are caused by non-uniform moisture distribution in the sheet. This non-uniformity can be of two kinds:

a. Excess of moisture in the felt side as compared with the wire side, or vice versa;

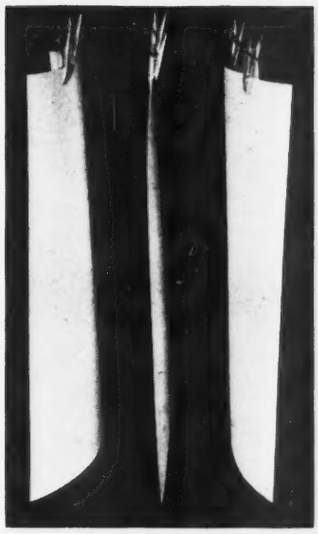


Fig. 3.—Single sheets of offset paper showing typical moisture curl.

*Left:* Sheet conditioned at 15% r.h., curling toward wire side.

*Center:* Same paper, conditioned at 45% r.h.

*Right:* Same paper, conditioned at 75% r.h., curling toward felt side.

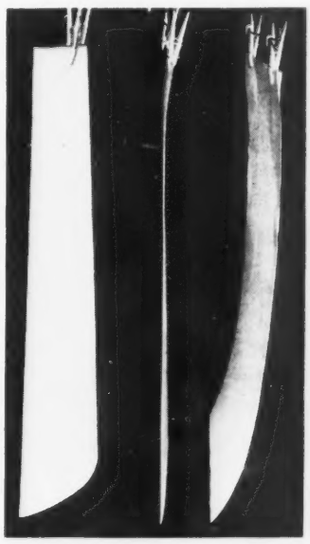


Fig. 4.—Single Sheets of coated-1-side paper showing moisture curl.

*Left:* Sheet conditioned at 75% r.h., curling toward coated side with the grain.

*Center:* Same paper, conditioned at 45% r.h.

*Right:* Same paper, conditioned at 15% r.h., curling toward the coatedside against the grain.

b. Differences in the amount of moisture in different areas of the sheets.

An excess of moisture in one side of the sheet may result from (1) exposure of that side to a moist atmosphere, or (2) from liquid moisture picked up from the offset blanket during printing. In pressroom experience, Case (1) is relatively unimportant since it occurs in only the top sheet on the pile. Case (2) is more important since it may occur in all sheets, and the curl produced may be serious enough to prevent proper jogging on the press delivery. In either case, the curl is only temporary because the moisture permeates the entire thickness of the sheets in a matter of minutes, and they either flatten out again or take on another type of curl which is permament and which will be described later. Obviously the only preventive of *press-moisture curl* is to carry a minimum of moisture on the printing plate.

A deficiency of moisture on one side of the sheet can occur temporarily if the pile of paper is exposed to too dry an atmosphere. In this case a few of the top sheets will curl upward.

Differences in amount of moisture in different areas of the sheet can result from various causes. If a pile of dry paper is exposed to a humid atmosphere the edges will absorb moisture and expand while the remainder of the sheets remain unchanged. This expansion, of course, causes the edges, particularly across the grain of the paper, to expand and become wavy. If, on the other hand, a pile of moist paper is exposed to a dry atmosphere the edges of the sheets will lose moisture and contract, particularly across the grain. This condition produces a baggy or tight-edged sheet. Both *waviness* and *tight-edge* are in reality types of curl. Their principal effect is to interfere with register. They can be avoided only by preventing exposure of the pile to any atmosphere not in hygrometric equilibrium with the paper. This can be done by observing the following precautions:

1. Never unwrap a skid or unpack a case of paper until it has first attained temperature equilibrium with the surrounding atmosphere.
2. As soon as the paper is unwrapped or unpacked, test it for variance from equilibrium with the surrounding atmosphere. If the variance is appreciable, the paper should be reconditioned before printing.
3. Keep piles of paper covered with moisture-proof material between printing to protect them in case of changes in atmospheric humidity.

Non-uniformity of moisture in paper can also result from non-uniform dampening of the plate during printing. Thus, after the press moisture has permeated the entire thickness of the sheet, there would be one or more streaks from the front to the back edge that contain excessive moisture. If the moist streaks occur at the edges of the sheet these will become wavy and prevent register in printing succeeding colors. If, however, they occur through the main body of the sheet, no waviness or curl may be immediately evident. But, if this work happens to be a sheet of labels, trouble

Fig. 5.—Delivery end of offset press showing temporary curl of sheet with the grain, caused by moisture pick-up.

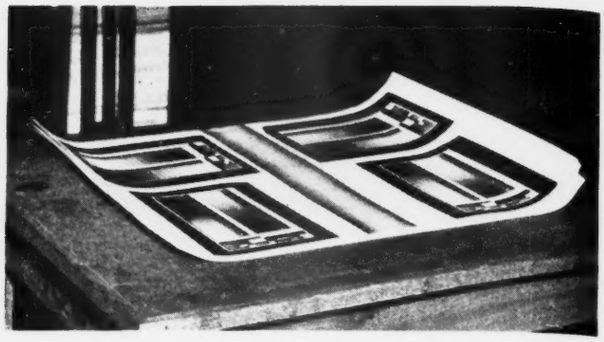


Fig. 6.—Printed sheets showing permanent curl against the grain, resulting from excessive press moisture.

Fig. 7.—Labels showing curl against the grain.

will be encountered due to curling of some of the labels, but not others, after they are cut. This type of curl will be described more fully under the heading "Structural Curl".

Another type of curl that can be classified as moisture curl is that due to too much or too little moisture, even though such moisture is uniformly distributed throughout the sheet. Almost any sheet will curl toward the felt side if too moist, and toward the wire side if too dry. This type of curl is due entirely to two sidedness, that is, to differential expansion or contraction of the felt and wire sides. Curl due to excessive dryness is always more troublesome than that caused by excessive moisture, because dryness is accompanied by increased rigidity.

*Structural Curl.*—Structural curl is the result of a permanent change in the structure of an originally flat sheet. And, practically speaking, there are two ways in which structural change can be brought about in pressroom and finishing operations:

a. Relieving stresses in the fibers on one side of the sheet but not the other

b. Mechanically breaking a portion of the bonds between the fibers which make up the sheet.

As previously stated most machine-made papers contain unrelieved stresses as a result of being dried under tension, and calendering. If the paper is flat it is because these stresses are balanced, that is, their total combined effect is the same on both sides of the sheet.

Stresses in paper are retained under conditions of normal moisture content. But if the moisture content is raised above 9 or 10 per cent, the fibers become limp and flexible and rearrange themselves so that the original stresses are relieved. This rearrangement results in the sheet becoming permanently shorter in the grain direction and sometimes also in the cross direction, after it is brought back to its initial moisture content.

Now, if a sheet of paper is moistened on one side only in such a way that the stresses are relieved on that side but not on the other, the moistened side only will change its dimensions and the sheet will take on a permanent curl. In offset printing, for example, the running of excessive fountain water on the plate may cause enough moisture to be picked up and absorbed by the printed side of the paper to soften the surface fibers and relieve their stresses. As the sheet passes to the delivery pile part of this moisture evaporates, and the remainder quickly diffuses throughout the sheet until its moisture content becomes uniform. In the final condition, however, even though the moisture content of the sheet may have been increased 0.2 or 0.3 per cent, this is not enough to relieve stresses in the body of the sheet and only the surface fibers on the printed side will have been affected. The result is that the printed side becomes shorter, usually in both directions, while the back of the sheet expands somewhat in the cross direction. The sheet, therefore, finally tends to curl in two directions; (1) toward the printed side against the grain, and (2) toward the printed side with the grain. Obviously it cannot curl in both directions at the same time, and the curl which is strongest will prevail. The final direction of curl, therefore, depends on the structural characteristics of the individual sheet and there is no sure way of predicting it.

It is common observation that printed sheets arriving at the delivery of the offset press show a curl with the grain and toward the back. That is, the front and back edges curl down. This curl is usually due to "moisture pick-up" as described. It can also be caused by "breaking" of the sheet if the blanket is tacky or if solids are being printed with tacky ink, and this condition will be discussed later on. The amount of curl resulting from moisture pick-up, however, depends on:

1. The amount of moisture on the printing plate. The greater the amount of moisture the greater the curl.

2. The hardness and density of the sheet. A hard bond will curl much more than a soft M.F. paper of the same thickness.

3. The thickness of the sheet. A thin sheet will curl more than a heavier sheet of the same type.

But this curl is usually only temporary and disappears as soon as the moisture has had time to penetrate or diffuse throughout the thickness of the sheet. Then, if the moisture originally absorbed by the printed side was sufficient to relax its surface fibers, a new type of curl will appear which is permanent—a curl that is toward the printed side, often against the grain.

Since structural curl of this type is caused by excessive plate moisture, and since excessive plate moisture may occur during only a portion or portions of a run, it often happens that only part of the printed sheets will curl. Also, since only a portion of the plate may carry excessive moisture, the curl may not be evident until the sheets are cut, when some parts will curl and others will not. This accounts for the fact that when a label job is cut some of the labels may curl while others remain flat. Sheets

Fig. 8.—Lithographed letterhead showing curl against the grain.

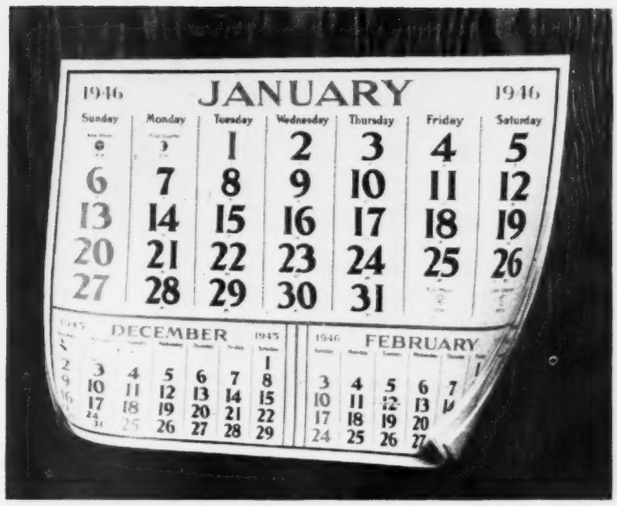



Fig. 9.—Calendar pad showing typical structural curl.

which have received excessive moisture all over will produce all curly labels. But if the dampening was non-uniform only labels from the excessively moistened areas of the sheet will curl. Sometimes all of the labels curl but the degree of curl varies over different areas of the sheets. It has even been found that some of the labels curl with the grain and others against the grain, in the same sheet.

Obviously, when paper is printed on both sides, any curling tendency due to relief of strains between surface fibers on one side will tend to be counteracted by a similar relief of strains on the opposite side. But when only one side is printed there is no such compensation, and prevention is the best cure. However, if a printed-one-side job shows objectionable structural curl, this can be remedied, to some extent at least, by the expensive method of running the paper through the press, using a blank plate to apply moisture to the unprinted side.

Mechanical "breaking" of the sheets as a result of excessive force required to peel or strip them off the blanket as previously mentioned, results in another form of structural change which produces curl. The sharp bend as the sheet leaves the blanket causes part of the bonds between the fibers or in the coating on the printed side to break. This produces a permanent curl *with the grain* and toward the back or unprinted side—the same as the temporary curl caused by moisture pick-up. The difference is that it is permanent.

The "embossing" of light weight label sheets is in reality a form of curl and is also due primarily to mechanical "breaking" of the sheet in areas printed in solids. In this case the tack of the ink produces the pull that causes the "break".

There is no practical remedy for curl or embossing which results from "breaking" of the sheet, once this has occurred. Preventive measures, however, include avoiding use of a tacky blanket, use of a minimum of pressure in printing, and keeping the tack of the ink as low as possible.

## Directomat Installations and Presses on Order

Lake Erie Engineering Corporation recently reported installations and orders for Directomat Direct Pressure Presses for stereotype matrix molding as follows:

There are nearly 100 installations in plants of all types throughout the United States and Canada including daily and weekly newspapers, magazine publishers, commercial platemakers, business form plants, syndicate and color-printing plants, etc.

For newspaper work alone, besides more than 20 installations reported as already in use, Lake Erie Engineering Corp. reports the following Directomats on order: Chicago *Herald-American*; Chicago *Sun*; Cincinnati *Times-Star*; Columbus (O.) *Dispatch*; Detroit *News*; *Editorial Panamericana*, Mexico, D.F.; Houston (Tex.) *Chronicle*; Indianapolis (Ind.) *News*; London (Can.) *Free Press*; Oklahoma Pub. Co., Oklahoma City, Okla.; *Wall Street Journal*, New York; Youngstown (O.) *Vindicator*.

## Equipment by Monomelt

Through inadvertence, the name of the Monomelt Co. was omitted from the article *Meredith Announces Use of First Press for Electro Plastic Molding* in the April issue of *Printing Equipment Engineer*.

In the article was discussed installation of the first new plastic molding press built by Monomelt in the plant of the Meredith Publishing Co. Robert Myers of the Capital City Co., installed the equipment. Making plastic molds for electrotypes was developed at Battelle Memorial Institute, Columbus, O. The research work was sponsored by a group of electrotypers in various parts of the country operating under the name, Printing Plates Research. The Monomelt Company has been active in collaborating with Printing Plates Research in developing, designing and building equipment for making plastic molds for electrotyping by the new process.

## IPI Top Essay Winners

Winners in the 10th Annual IPI Essay Contest, in which more than 6000 students of printing in the United States and Canada competed, were announced this week by Fred E. Hartman, Educational Director of the National Graphic Arts Education Association, which cooperates with the International Printing Ink Division of Interchemical Corporation in sponsoring this annual competition. Six thousand entries were received.

Grand prize winner is Richard Oransky, 18 year old senior at Portland High School, Portland, Me. This prize is a $1,000 savings bond. Included in his outside activities have been 38 weeks on the radio in various teen age news and variety programs broadcast over radio station WGAM.

A refugee boy, in this country for two years, wins the first prize in the regular contest, a $500 savings bond. He is Frank Brenner, a 17-year-old student at the New York School of Printing. Brenner has at least two years more to go at the New York School of Printing before graduation, and his plans after that involve entering into some type of a printing career. He came to this country by way of England, having left Nazi Germany when he was 10 years old.

# Photo-typesetting

## *Two new possible developments in the Graphic Arts Industries**

TWO photo-typesetting mechanisms are being developed in the United States by Intertype Corporation and Huebner Laboratories. These will be discussed briefly. Other inventors reportedly are working on photographic typesetting machines, but so far as is known, they have not progressed beyond the paper stage.

AS revealed in a 75-claim patent recently allowed by the United States Patent Office, the proposed Intertype Corporation method of photo-typesetting employs a mechanism similar in all respects to the standard hot-metal line-composing machine—that is, the well-known circulating matrix, spacebands, keyboard assembling and distributing mechanisms. The major differences between standard hot-metal machines and the new photographic method are in the matrix, the photographing mechanism, and the exposure of the justified matrix line one character at a time, instead of all the characters in the line being photographed simultaneously. Thus, in place of the conventional metal pot, Intertype employs a camera mechanism for exposing the letter character in each matrix upon the sensitized film.

It appears that the basic requirement of a machine of this character has been fully complied with—that of being able to compose straight-matter composition in quantity. It also appears that the machine could readily be modified to permit doing mixed composition and display composition just as is done with standard hot-metal composing machines in the form of slugs.

The matrix as used in photographic composition carries the identical form and outline of the hot-metal circulating matrix. In place of the usual matrix casting cells, a round aperture is cut in the matrix body. In this aperture is mounted a film carrying the character in negative form. Another important difference between the hot metal and the photographic matrix is that instead of using the lugs as aligning points for the letter character, a notch is out in the rear edge of the matrix body for aligning purposes. Just before each letter character is exposed to the film, an aligning slide enters the notch and positions the matrix properly with respect to alignment of the letter character with the optical axis of the camera lens.

Line justification is accomplished by the standard type of expansible spaceband. Before the exposure of the letter characters on the film, the matrix line is justified in the same manner as in hot-metal composing machines. After the line is justified a bar actuated by a lock lever contacts the bottom of the spacebands and holds them in justified position until all of the matrices and spacebands have been discharged from the line and exposed before the camera.

As has been previously stated, the matrices are raised one at a time from the justified line in a channel by means of a lifting pawl attached to a feed bar to a position before the camera lens. A slide having a wedge shaped end fits exactly into the notch in the back edge of the matrix body and holds the matrix in proper alignment. The exposure of the letter character in the matrix to the film is now made automatically.

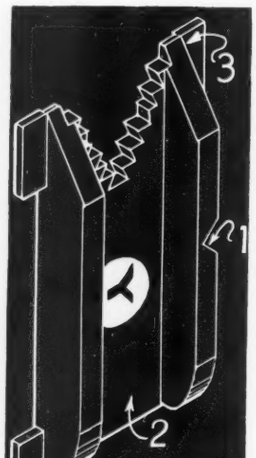



Diagram represents modified hot-metal "matrix" for proposed photo-typesetting machine in recent patent allowed Intertype Corporation by U. S. Patent Office.

**The photo-typesetting matrix is of the same general overall size and formation as standard matrices. Carried in negative form in the body *2* of the matrix is the letter character. Matrices are aligned before the optical center of the camera lens by means of a slide advancing to engagement with the notch *1* in this diagram. The lugs *3* of the matrix, instead of varying in thickness with the set-width thickness of the letter character, are all of the same thickness, irrespective of the width of the letter character. The matrix body *2* is recessed or slotted, the two long ribs extending the length of the matrix body corresponding to the set-width thickness of the letter character.**

The proper set-width opening of the camera main shutter is made automatically at the time the matrix is displaced from the end of the justified matrix line.

Also, at the same time, mechanisms are provided for moving the film and the film holder an amount directly proportionate to the set-width of the letter character.

These actions take place at the time a matrix is displaced from the justified line. As each matrix is lifted from the line for positioning before the camera lens, the balance of the line is moved a distance to the left against a fixed stop exactly the distance represented by the setwise thickness of the displaced matrix. This movement of the unexposed balance of the justified line, consequently, determines through suitable mechanisms the width of the main shutter opening and the movement of the film and film holder for each matrix about to be photographed.

The spaceband is raised to photographing position before the camera by its upper lugs in a manner similar to that of the matrices. Its adjusted word spacing position, of course, sets the width of the main shutter opening and advances the film holder and film just as in the case of the matrices.

After each matrix or spaceband has been exposed before the camera lens, it is moved vertically in a channel by lifting pawls to the usual transfer position. At this point, the matrices are pushed horizontally so that their teeth will be in engagement with the corresponding rails of the second elevator bar. When the matrix line has been photographed and the matrices have been transferred to the second elevator bar, the bar raises the matrices to the distributor from which they are distributed into the magazine in the usual manner as with hot-metal machines.

After being photographed and raised to the transfer channel, each spaceband is returned immediately to the usual type of spaceband box at the right of the transfer channel. The spaceband is pushed into the transfer channel by the pusher which also urges the matrices into the transfer channel. Having no combination teeth, the spacebands drop a slight distance downwardly until the lugs of the sleeve engage a front and back rail in the transfer channel. At this time two distributing screws in the transfer channel (one each front and back), similar to standard matrix distributor screws at the top of the machine, engage the sleeve lugs and return the spaceband immediately to its box.

It should be understood that by the time Intertype Corporation is ready to provide machines to customers, it is likely that the means for accomplishing certain functions, such as line justification, exposure or distribution, may be altered radically from the methods described in the patent application.

Right now, it seems that the first machines would be used largely for straight-matter composition. It is also apparent that there would be no reason why mul-

*Abstract from address delivered by MacD. Sinclair before New England Conference for the Graphic Arts, Boston, April 1946.

tiple magazine machines could not be operated for mixed and display composition such as is now done with hot-metal machines.

After the film has been developed, the composition can be supplied in either negative or positive form. It would be possible, of course, to use the film as a negative. It would also be possible to use the positive prints for pasteup purposes.

Among those potential users who have not given much consideration to line-spacing (leading between lines), it would seem that this is no problem at all, since leading can be determined before composition starts.

Line corrections can be made as easily as at present with the hot-metal machine by composing and re-photographing an entire line, deleting the line containing the error in the film and splicing the new line in place. In case the product consists of paper positive, a piece of paper bearing the corrected word, for instance, could be posted over the word containing the error.

### Huebner Phototextype Machine

WILLIAM C. HUEBNER, father of the photo-composing machine, and head of Huebner Laboratories, New York, has announced development of a photo-typesetting machine. While I cannot give you a detailed description of the Phototextype machine, yet enough information has been released by Mr. Huebner so that a general idea of the device can be obtained.

It is reported that Mr. Huebner will have the Phototextype machine on the market by the end of 1946, that it will cost about as much as a line-composing machine and that it will do everything by photographic means that such a machine will do by hot metal.

Mr. Huebner has approached the problem of providing a machine for executing photographic typesetting by utilizing entirely new mechanisms as compared to the accepted methods associated with mechanical typesetting.

He calls it a "Phototextype composing machine camera." The machine is designed to produce composed type matter in many different sizes and kinds of faces in negative film form already photographed and ready for the final step of transferring by vacuum printing to a lithographic plate.

Apparently, the machine consists of three divisions, the keyboard, the magazine and the camera itself with suitable mechanical and electrical operating devices.

The machine can be operated by a typewriter, line - composing or by a Monotype keyboard. The purpose of this flexibility is to make work easier for the operator who is familiar with just one type of keyboard. The inventor states the speed of the machine is comparable to the speed of the operator. By means of a special plug, the change from one type of keyboard to another may be made quickly.

A master character plate is used in place of the usual magazines as employed on line-composing machines or the die case on the Monotype. First, the pattern characters are drawn to a height of about 7 in. They are then photographed down to fit a master negative with the characters arranged in their respective positions on that master character plat This plate is located in a fixed position in the machine. It can be removed or replaced in approximately ½ min. The range of type sizes for each letter is from 5 pt. up to large display type.

An automatic mechanism is provided for calculating the space for each line in advance. When the operator touches a keyboard keybutton, the corresponding letter character is not photographed on the film immediately but is "stored up" by an electrical selector system until the entire line has been composed. An automatic calculating scale indicates to the operator how much the spaces between the words must be reduced or expanded to make the line come out even to the predetermined line measure. A row of keys is provided on the machine to actuate the mechanism in accordance with the needed space adjustment. After the line spacing has been taken care of, the operator depresses a key. The photographing mechanism automatically exposes the letters one by one on the sensitized film. While the camera mechanism is automatically exposing the line, the operator composes the next line and so on. It is reported that the only moving parts in the Phototextypesetting machine during actual production composition are the keybars and the camera shutter. The master character plate from which the letter exposures are made on the film is stationary. The complete exposure operation is done by optics and electronics.

Treatment of the finished product (in film or paper form) is similar to that described for the Intertype device described above.

## Sales Meeting Held

Sam'l Bingham's Son Mfg. Co., manufacturers of printers rollers, Chicago, Ill. held a meeting of its branch managers, salesmen, representatives and production men at the Palmer House in Chicago, March 17, through the 20th. Conditions pertaining to the printing trade were discussed and the future operations of the company outlined, and exhibits were shown of the new products which the company had been working on, with the prospects of having some of them in production soon.

At this meeting fifty were present. Among those present were Ted Ringman, who just returned from the army with the rank of Captain; and James W. Monahan, son of James T. Monahan, who was a First Lieutenant in the army air force.

The company resumed its practice of holding these meetings, which had been in effect for many years but which was discontinued in 1939 because of the war.

It is expected that a similar meeting will be held in February of 1947, at which time the company will have completed 100 years under the same family and management.

## Surface Pyrometers

Cambridge Instrument Co., Inc., has published a 12 page illustrated bulletin No. 194-SA. The text is devoted to descriptions, utilities and ranges of roll, mold, extension, needle and surface pyrometers for taking temperatures. Of particular interest to members of the Graphic Arts are the roll and mold pyrometers. The roll instruments are used for checking temperatures of metal rolls and plate cylinders of presses operating with coldset inks. The mold prometers are used for tanking temperatures of plastic molding presses and molds, as well as stereotype direct pressure presses. A copy will be sent to any printing executive upon request to Cambridge Instrument Co.

## Declaration of Policy

Because of the anxiety to make plans for the future, purchasers of presses to be manufactured by Miehle Printing Press & Mfg. Co. have wished for estimates on shipping dates. In an open letter to its entire mailing list, Miehle states that under present conditions it is impossible to estimate shipping dates with any degree of accuracy.

In the letter it is stated that progress has been made in the Miehle factory in building up production. However, many presses which were started three or four months ago are still uncompleted on the erecting floor waiting for one or numerous parts to complete them. The principal problem has been to obtain supplies of all kinds in a steady stream.

It is stated by Sales Manager C. Mellick that Miehle expects the existing confllicting Government laws, rules and regulations to be clarified soon and labor disputes settled so that its suppliers can step up their production of needed supplies and materials. With a balanced flow of materials the volume of press shipments can be increased rapidly.

**ANPA MECHANICAL CONFERENCE EXHIBIT RESERVATIONS**

PRINTING EQUIPMENT ENGINEER will handle reservations for the manufacturer and supplier exhibit spaces, ANPA Mechanical Conference, to be held at Hotel William Penn, Pittsburgh, August 5, 6 and 7.

Floor plan layouts and complete information may be obtained from PRINTING EQUIPMENT ENGINEER, 1276 West Third St., Cleveland 13, Ohio.

# Ad Man's Universal Work Frame

***designed on unit principle to suit needs of composing room in which it is to be used— Each frame a self-contained one-man outfit***

DESIGNED on the unit principle, the Mervick-Dent ad man's universal work Frame can be fitted to the needs of most any composing room. The frame shown in the illustrations accompanying this article was designed especially for a large composing room. This cabinet is the result of the collaboration of two men—Andrew R. Mervick, Composing Room Superintendent and James M. Dent, Chief Machinist of the Pittsburgh *Sun-Telegraph*.

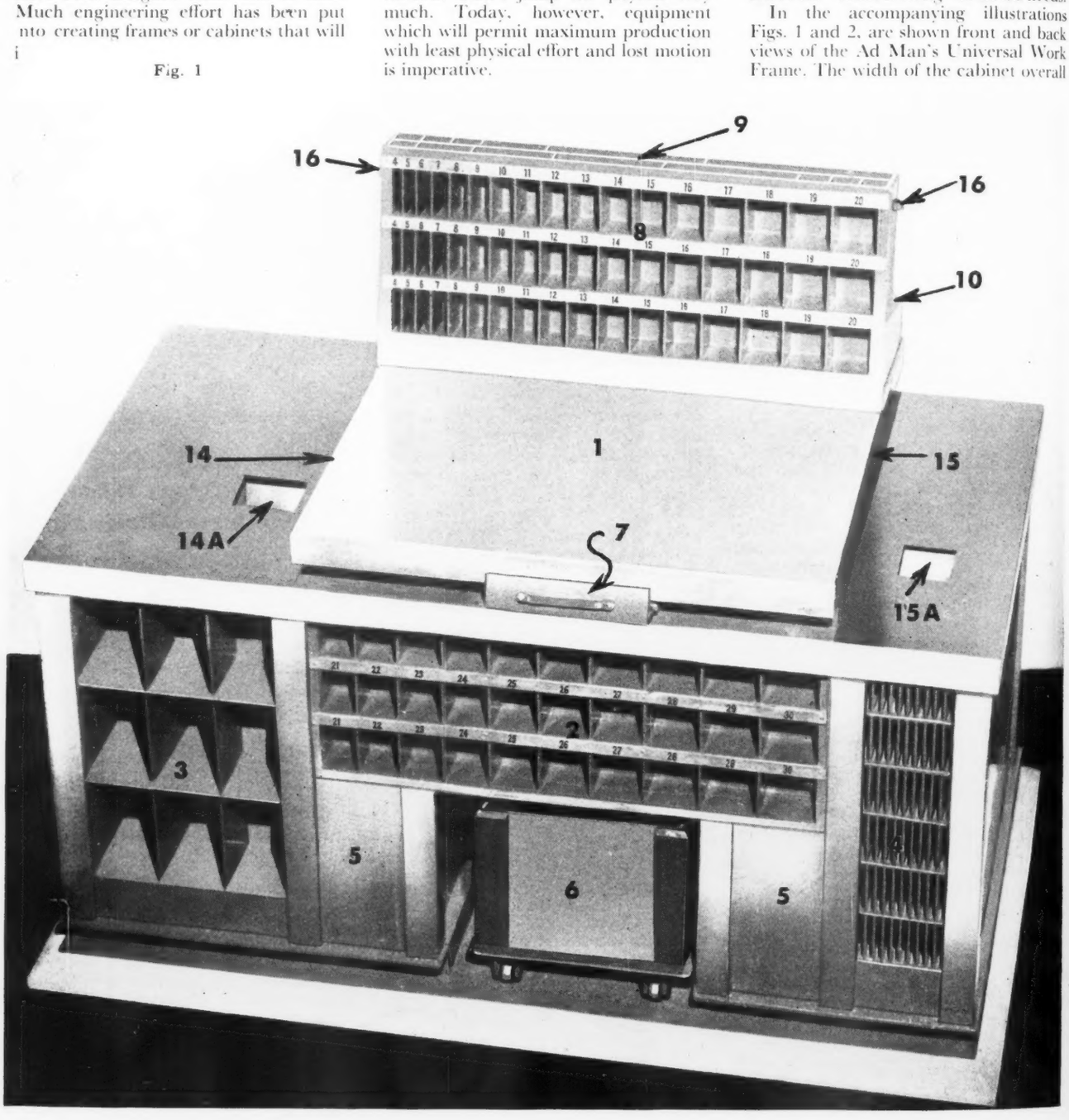
Many types of ad men's work frames have been designed from time to time. Much engineering effort has been put nto creating frames or cabinets that will be suited to various kinds of composing rooms. The principal idea, of course, has been to provide a frame that will enable an assembler or compositor to secure needed materials and to do fitting with the least possible foot and hand work.

From the standpoint of plant production costs it is cheaper to provide equipment that will reduce unproductive time to the minimum than it is to attempt to employ high-priced help with inefficient equipment. When printers were getting 50c per hour, additional help, when needed, didn't jump the payroll very much. Today, however, equipment which will permit maximum production with least physical effort and lost motion is imperative.

In the Mervick-Dent ad man's universal work frame the designers have provided a cabinet suitable for assembling from line slug and type composition. Spacing material storage (leads and slugs), rule and border storage, galley storage, waste disposal and saw-trimmer and mitering facilities all have been included in the one unit. It is planned to provide these ad frames with different units so that the plant executive can select the units that are needed in his plant. Thus he will not be required to select the "nearest thing" to fit his needs.

In the accompanying illustrations Figs. 1 and 2, are shown front and back views of the Ad Man's Universal Work Frame. The width of the cabinet overall

Fig. 1



is 72 in.; depth is 39 in., and the height from floor to top of frame is 38 in. The compositor's work top *1* is 40 in. wide.

Referring to Fig. 1, the lead and slug material case *8* on top of the work frame contains three rows of compartments spaced to even picas from 4 to 20. The top row of compartments may be used for leads; the center row for low slugs, and the lower row for high slugs. While not shown in the illustration, the partitions will be supplied with notches or holes so that when the compartments are completely filled the workman may have easy access to the leads and slugs.

Each material compartment is 4 in. high and deep enough for three tiers, thus providing 24 in. of material in each compartment.

Lead and slug material is continued in lengths from 21 picas to 30 picas in the rack *2*, Fig. 1, below the work top *1*. Cases *8* and *2* both are tilted slightly. The bottom rack or case *2* is recessed within the body of the frame so that floor trucks cannot strike it when pushed up to or past the ad frame.

Shown in section *3*, Fig. 1, are compartments for 3, 4 and 5 col. leads, low slugs and high slugs. Opposite in the rear view (Fig. 2) are compartments *13* for 6, 7 and 8 col. material.

In the right-hand side (Fig. 1, front view) are compartments *4* for 60 different machine-cast border and rule strips.

On top of the material case *8* in Fig. 1 is a compartmented section *9* for storing cut-off rules from 1 col. to 8 col., plus a number of single-column compartments for dashes, ornaments, arrows, and the like peculiar to ad-setting and assembling operations. In the rear of this compartmented case *8* are bins *10* to supplement the supply of quads and spaces in the type cases *12*.

The type cases *12*, Fig. 2, are deeper and of greater area to accommodate ample supply of display type, thus allowing 300% more type than is contained in standard California job cases. These cases will be built entirely of steel and will be roller-bearing. Automatic stops will be provided so the case cannot be pied by pulling it out too far.

In the lower part of the ad frame two lockers *5*, Fig. 1, have been provided. The doors will have individual locks. These lockers can be used by day side and night side workers in which to keep aprons, line gauges, tweezers, rules or other personal property.

At *16* and *16*, Fig. 1, loops or fasteners will be supplied, to which can be applied standards for 40 in. fluorescent lamp fixtures. No other light will be needed if the ad frames are placed in aisles back to front manner, since the angle of the reflectors will cast ample light in the aisle between the frames.

Now, to describe the features of the top of the ad frame, adjustable bars will be provided at 14, Fig. 1, to extend over the 21 in. wide top. These bars will permit mounting any make of saw-trimmer.

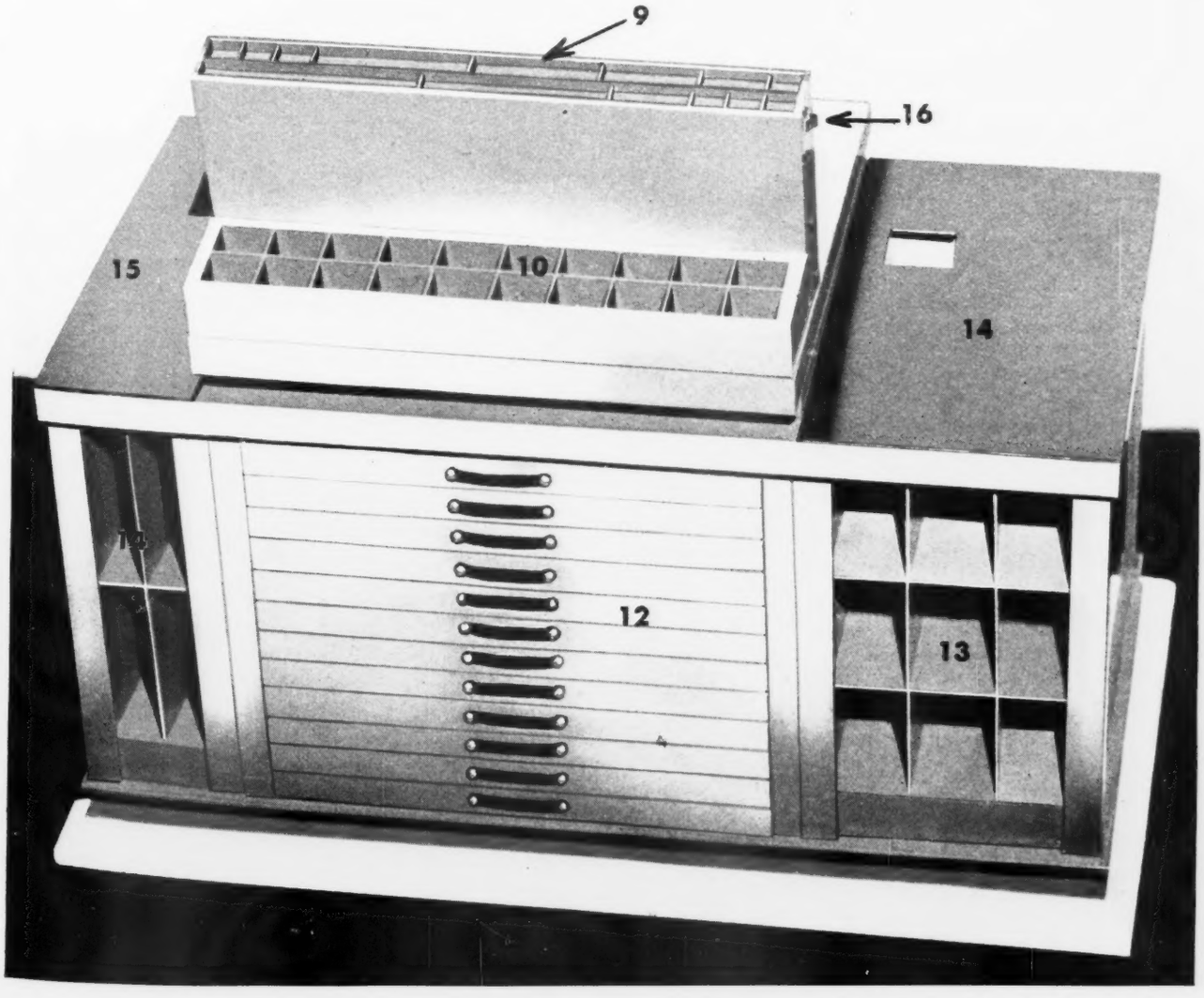
At *15* on the 11 in. wide portion of the top of the frame in Fig. 1, a mitre gauge extension will fit under an opening in the right edge of the work top *1*. Sufficient clearance has been provided for moving the gauge and for easy eye-sight.

Both the saw waste chute *14a* and the miterer waste chute *15a*, Fig. 1, are so arranged that trimmings will be delivered into the truck *6* housed in the lower center part of the ad frame.

The drawer *7*, Fig. 1, in the center of the work top *1* is for reception of waste materials. When the drawer is opened the waste is swept into it. As the drawer is closed the waste is deposited automatically into the waste truck *6*.

It is anticipated by Messrs. Mervick and Dent that Hamilton Mfg. Co. will make the ad frames and American Type Founders will act as sales agents. Mr. Dent has constructed a small scale model from which the accompanying illustrations were reproduced. This model will be on display at the ANPA Mechanical Conference in Pittsburgh, August 5, 6 and 7. A full scale ad frame will be exhibited if possible.

Fig. 2



# Labor and Employee Conservation Devices at the Detroit *News*

By **CHARLES M. KIRK,** *Stereotype Superintendent, Detroit* News.

A NUMBER of labor-saving and employee health-preserving devices have been introduced from time to time in the stereotype department of the Detroit *News*. Those described in this article consist of a dead plate conveyor, tailpiece conveyer, plate edge burr or fin remover, and a device for making lateral movement of stereotype plate router heads more nearly frictionless. All of these improvements were designed and made by Master Mechanic Fred Meyer and built in the shop of the Detroit *News*.

Another important innovation designed by Meyer was described in the December 1943 issue of *Printing Equipment Engineer*. This consists of an enclosure fitted to our Hoe plate routing machines. The glass enclosure confines flying router bit chips and bits of metal within the enclosure, enabling the operator to work without uniform or goggles, and makes it possible to set the routing machine any place without benefit of the usual cumbersome cage.

These devices illustrated on the opposite page will be described separately, as follows:

**Fig. 1**—This dead plate conveyor was designed to alleviate the physical strain necessary when a stereotyper lifts the 40 lb. plates from the truck to the feeding-in aperture of the 9 T. metal pots of the Wood Automatic plate-casting machines in the stereotype foundry. This mechanism also makes it possible to feed the plates into the pot in a more even manner than is possible under hand-fed conditions. The position in which the plates are delivered into the pot also permits guarding of the plate opening so that splashed metal from the pot does not fly outwardly because the swinging gate drops immediately as the plate is delivered into the pot.

We will not go into any greatly detailed explanation about the specifications for the conveyor. However, the framework is constructed of angle iron with steel side plates. The frame is 48 in. high (the height is determined by the height of the metal pot); extends outwardly approx. 30 in., and is 18 in. wide. The incline is approx. 45 deg. Mounted at the upper and lower ends of the incline are two shafts upon which are pinned four sprockets (two on each shaft); mounted on the sprockets and suitably supported by plate rails are two chain belts. The chain is Morse No. 60, $^{3}/_{4}$ in. pitch. Welded to the chain for plate propelling purposes are 1 in. lugs spaced 9 in. apart. As can be seen in the illustration, a Boston enclosed 15:1 reduction worm is mounted on a shelf in one corner of the frame below the lower end of the chain assembly. The reduction worm is connected by a length of chain attached to the sprocket on the upper conveyor shaft. The reduction worm is driven by $^{1}/_{3}$ h.p. motor operating at 1140 r.p.m. The conveyor chain travels at 50 ft. per min.

The little "platform" upon which the stereotyper rests the plate momentarily after he has lifted it from the truck and previous to placing it on the chain conveyor, is 30 in. from the floor. This height was determined as making the shortest lift from the dead plate truck platform to the feeding point of the conveyor. It is about waist-high for the average man.

Mounted about midway of the incline is a fixed shaft. Mounted on this shaft are two collars, each bearing a radially projecting sharp-pointed pin or needle *1* and *1*. Mounted in one side of each of the collars, parallel with the axis, are two short pins spaced about $1^{1}/_{2}$ in. apart. Each pair of pins straddles a pin inserted in the fixed shaft. This arrangement permits movement of the sharp-pointed needles through a small sector of a circle. In their normal position, the two needles terminate in a position so that their points will obstruct the accidental falling back of a plate (if it ever occurs) should a plate slip backwardly from the conveyor chain lugs. Likewise, as each dead stereo plate is conveyed under the needles, the plate raises the pins sufficiently to permit passage underneath the needles.

The dead plate conveyor is portable, i.e., it is mounted on four casters. The electrical connection consists of a heavy flexible cord which is plugged into a receptacle fastened on the side of the Autoplate machine. The connecting wire leads into an enclosed metal safety switch box fastened to one leg of the conveyor. Armored cable completes the connection from the switch box to the motor itself. The conveyor may be re-

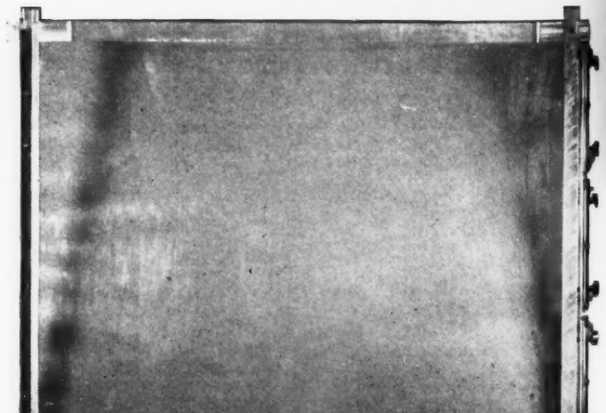
**Fig. 5**—*Stereotype Color Plate Register Frame.* One of the problems in registering color plates with the black or key plate, or when registering duplicate plates in the form by the see through-transfer process is to be able to stretch the celluloid or cellophane sheet tautly and without wrinkles in the register frame.

At the Detroit *News*, Machinist Fred Meyer has constructed several frames for use in registering color plates in the stereotype department.

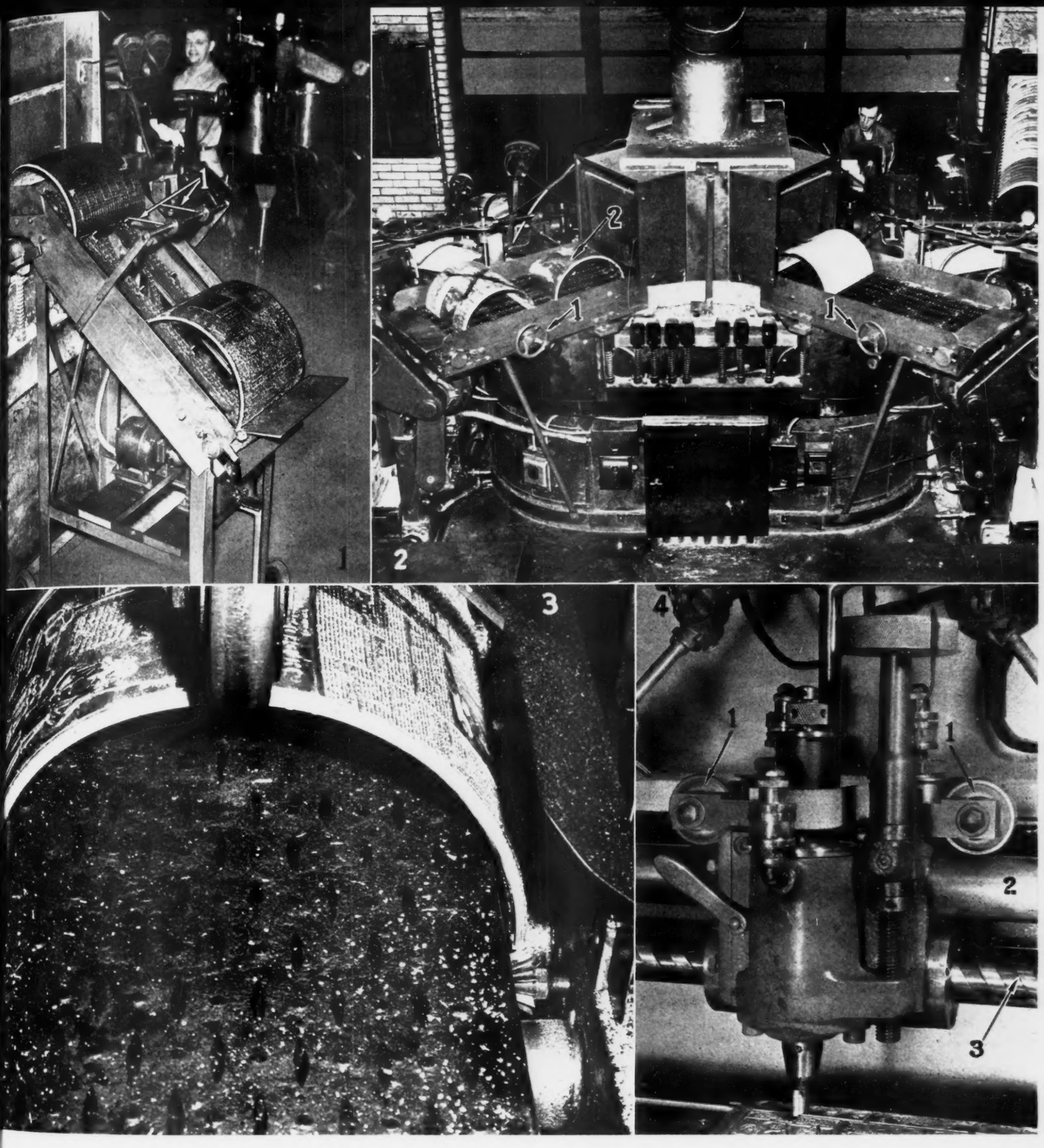
The frames have been made up from aluminum bar stock. As shown in the illustration, Fig. 5, (left side) one end of the cellophane sheet is held under a curved clamp. The clamp is screwed to the frame at 2 in. intervals.

At the opposite end (right side), the clamp is composed of three sections, each of the sections riding on two guide pins. Each of the three sections is controlled by two adjustable knurled-head screws. This arrangement provides the operator with six points for take-up. Careful adjustment enables the operator to pull the celluloid evenly over the entire frame area, thus providing a plane surface on which to do the registration work.

The aluminum racks have been constructed by Mr. Meyer to fit all stereotype chases in use at the *News*. The pins which are fitted into one side bar of the frame have been positioned by use of the same jig by which the corresponding holes in the chases have been drilled.



The side bars of the chase (top and bottom in this picture) have been milled to a depth of $^{1}/_{8}$ in. to permit insertion of a flat piece of metal to move the printing plate to proper position for register.




moved from its working position by simply unlocking a spring catch underneath the lip of the metal pot. Thus removal of the conveyor makes it convenient for pot cleaning purposes.

**Fig. 2**—*Tail Piece Conveyor.* While the device shown in this figure is called a tail piece conveyor, yet it is wide enough to convey full 40 lb. plates back into the metal pot. The conveyor, of course, was designed to carry 25 lb. plate tail or waste pieces *1*, sawed from full page plates in the casting box. The conveyor projects outwardly from the casting box to a position where the casting box operator can pick off the tail piece and place it on the conveyor without taking unnecessary steps. The same type of chain is used for the tail piece conveyor as is used in the dead plate conveyor. We have been unable to purchase enough of the heavier weight chain for all conveyors. The light chain will be replaced with the heavy chain as soon as it is obtainable. The chain on this conveyor travels fast enough to take six plates per min. The automatic Autoplate casts four plates per min. The tail piece conveyor is driven by power from the Autoplate motor. Visible at the side of each conveyor frame in the picture is a free-wheeling handwheel *1* and *1* which makes it possible to operate the conveyor by hand should the casting box motor not be operating.

**Fig. 3**—*Automatic Plate Edge Trimmer.* We have an automatic plate edge trimmer which has been mounted beneath the floor level plate conveyor from the stereotype foundry to the presses. This trimmer removes any fins, wire edges or bruises which may appear along the two

parallel edges of the plate. Two 60 deg. Brown & Sharpe Mfg. Co. cutters are used—No. J25 l.h. and J38 r.h. These cutters are affixed to a shaft mounted in bearings under a section of floor plate at either side of the runway. A guide at either side steers the plate to exact position so that each plate will pass over the cutters in proper position. The cutter shaft is driven by $\frac{1}{3}$ h.p. motor running at 1750 r.p.m. which is at least $\frac{1}{3}$ again as fast as the travel speed of the plate. It is important to have the cutters rotating at a greater speed than the conveyor. A rubber-faced pulley weighing approx. 5 lbs. rides on top of the plate as it (the plate) passes over the cutters. This keeps the plate from being lifted by the cutters. The cutter driving motor and the conveyor operating motor are connected to a single switch so that when the conveyor is started the cutters also will be started.

**Fig. 4**—*Curved Plate Router Head Weight Relieving Device*—As is shown in the illustration at *1* and *1*, two $1\frac{1}{2}$ in. ball bearing rollers have been affixed at either side of the router bit head on brackets affixed to the head itself. The construction is of utmost simplicity. Each ball bearing roller is adjustable vertically by two headless jam screws in the bracket impinging against the roller stud. Without these ball bearing rollers the weight of the router head would rest directly upon the supporting rod 2, and to some extent the traverse screw 3. It can be seen that with the weight of the router head resting upon the supporting rod that operating friction of the head is reduced to a minimum. The hand wheel may be turned with ease. The cleaning and lubrication of the supporting rod is negligible when the weight of the head is taken by the pre-loaded ball bearing rollers.

# *Shrinkitis and other major newspaper production problems discussed at PNPA Newpaper Mechanical Conference*

NEWSPAPER mechanical executives and manufacturer and supplier representatives met in Harrisburg, Pa., on Monday and Tuesday, April 1 and 2 for the 1946 annual PNPA Mechanical Conference. There was a registration of 216 persons. Nicholas M. Fellman, Mechanical Superintendent of the Chester (Pa.) *Times*, was conference chairman.

Some highlights of the conference are printed in the following summeries:

### Photo-Engraving Meeting

The actual mechanical department meetings commenced on Monday afternoon, April 1. At this session, Stanley W. Myers, Asst. Mechanical Superintendent of the Philadelphia *Evening Bulletin* presided. R. G. Burotn, Manager of the Photographic Division of Williams, Brown & Earle, Inc., discussed darkroom installation. Among other statements he asserted that three essentials are necessary in darkroom construction: (1) Continuity of layout to give progression in operation, (2) Ventilation, and (3) Proper equipment and sundries for operation. He recommended use of stainless steel for processing cabinets, chemical storage, washing facilities, and the like. He also urged care in the installation of illumination for over-table and floor areas.

Chairman Myers discussed *Should We Install Our Own Engraving Plant?* He said that the development of printing pictures in magazines and news reels means that newspapers will have to use more and better pictures and a better job of printing them will have to be done.

"The chief factor in the installation of your own engraving plant," said Mr. Myers, "is cost—the cost of buying your cuts outside compared to the cost of making them yourself. If you were to ask me at this moment how much it would cost you to produce 50,000 to 100,000 square inches of engravings per year in a plant of your own I wouldn't hazard a guess. Your own particular engraving requirements, the location of your plant, local wage standards, availability of labor, and many other considerations will affect your square inch costs.

"How then shall we approach the problem? There is a formula that will enable you to decide whether or not you can afford to operate your own plant. You will note I said *operate*—not own—your own plant. There is a decided distinction. Ownership entails capital investment. But operation entails a multitude of expenses that go on year after year.

"If the cost of buying your engravings on the outside *equals* or *exceeds* the cost of employing at least one full time engraver, plus materials, rent, power, heat, interest and amortization of your investment, you can afford to operate your own plant.

"Calculate the average number of square inches of engravings per year you have been buying and multiply them by 1½c per sq. in. to approximate the cost of film, chemicals and metal. This figure is a little high and will allow for excessive waste and small volume buying.

"Is the total *equal to* or *less than* your last year's engraving bill? If it is, you are justified in installing your own plant.

"Many of you are probably asking yourselves how much production you could get out of a one-man plant. If your man can't average a 15 x 20 flat (or its equivalent) of *good* halftones per day you had better look for another candidate for the job!

"Today's prices for a small, completely equipped plant run between $3000 and $6000, depending on the type of equipment required. If square finish halftones only are to be made you can obtain a standard make camera, printing frame, lights, developing tanks, powdering and burning-in equipment, etching machine and guillotine for squaring up plates for approx. $3500. If you want to do line work as well, the additional equipment such as a router, beveler, etc. would bring the cost up to about $6000.

"On top of this you will have installation costs for piping, drains (including acid proof drain), wiring, and construction of a darkroom. Local conditions again enter the picture and control costs but I think $500 to $1000 would cover the average requirements. You will need

### "Shrinkitis" Detrimental To Good Print*

IT seems important to mention stereotype mat shrinkage. There has developed a lot of shrinkitis throughout the industry during the recent war years. Some newspapers are getting by fairly well, so far as printing black is concerned, in spite of that handicap. It's somewhat different when you get to making color plates. Excessive shrinkage and accurate register do not go together. We will do better color printing when we have eliminated all shrinkage. Neither do excessive shrinkage and good black printing without any color register involved go too well together.

I want to point out that if you are going to accept less than full pages in three color and black, and the news department sends the pages back one or more times during the run to make news changes, then, Mr. Stereotyper, you are in for something. That is part of the picture that should be made clear to management.

*Excerpt from address delivered by Production Manager Leon A. Link, Cleveland *Plain Dealer*, before PNPA Mechanical Conference, Harrisburg, Pa., April 1946.

**Mechanical Executives Attending PNPA Mechanical Conference in Harrisburg, Pa., April 1 and 2.**

*1.*—George W. Holloway, Mechanical Superintendent, Elizabeth, (N. J.) *Journal* and head of the New Jersey Mechanical Conference, with Lester H. Butler, Harrisburg, (Pa.) *Telegraph* Mechanical Superintendent; Harold T. Gray, President of the Gray Printing Co., publishers of the DuBois, (Pa.) *Courier-Express*; and Nicholas M. Fellman, Mechanical Superintendent of the Chester, (Pa.) *Times*. Mr. Fellman was in charge of the 1946 PNPA Annual Mechanical Conference at Harrisburg, April 1 and 2.

*2.*—Howard J. Lamade, Williamsport, (Pa.) *Grit*, with two Lehigh Valley mechanical department executives, Joseph B. Breslin, Bethlehem *Globe-Times* and Harry W. Sherman, Allentown *Call-Chronicle*. On the right, J. Harold Mintun, Production Manager, Pittsburgh *Post-Gazette*.

*3.*—Edward Hintenach, Mechanical Superintendent, Erie, (Pa.) *Daily-Times*, listening to a discussion of photography between Peter Loesch, Mechanical Superintendent, Erie, (Pa.) *Dispatch-Herald*; Joseph Pohl, of the *Dispatch-Herald*, and Milton J. Gates, of Chemco Photoproducts Co.

*4.*—Edward O. Davies, Mechanical Superintendent, Harrisburg, (Pa.) *Patriot* and the *Evening News*, and W. E. Wines, Manager, American Newspaper Publishers' Association Mechanical Department.

a minimum of 500 square feet of floor space—more is preferable if available."

### Monday Evening Dinner

Chairman Nicholas Fellman presides at the Monday evening dinner at which Leon A. Link, Production Manager of the Cleveland *Plain Dealer* was the speaker. Mr. Link's subject was *What Should Newspapers Do To Meet Increased Competition?*

Among the things he discussed were color printing, closer affiliation between department store advertising people and newspaper executives, elimination of "shrinkitis" (mat shrinkage) in newspaper production, first impression printing and better paper stock.

"The composing room foreman" said Mr. Link, " has been squawking, and very justly so, for many years, about the great amount of work in his department caused by resetting ads. His costs have increased considerably, and the cost of this waste will increase proportionately unless the publisher does something about it. An advertising man told me several weeks ago that the magazines often reset an ad two or three times, in order to please the advertiser. I don't doubt that—so do the newspapers. Let me point out that the magazine could probably have reset it a dozen times and still the cost of the composition would not have been as large a percentage of the revenue received from the ad, as it would have been to the newspaper that reset it once or twice. The ad must be as the advertiser wants it, but those contacts I refered to a moment ago might go a long way toward eliminating some of the laboratory work now engaged in.

"There is considerable talk these days about run-of-paper color advertising. Some of you may be of the opinion that this is a problem for management to decide, and I agree it is management's problem. It is the responsibility of the mechanical men to make a study of the costs and other problems involved, and supply these facts to management. The publisher should have these facts, all of the facts, to assist him in arriving at a decision, one that, at its best, will involve considerable speculation.

"I believe that if we are going to print three colors and black, that will, in some measure meet magazine competition, it can be done well only with modern equipment. Bear in mind, I am referring to run-of-paper color advertising, not comic sections. A poor, or just fair job of three-color-and-black printing in newspapers will not provide much that can be sold in competition with excellent magazine color work.

(*Continued on Page 51*)

### Printing Endowment Fund Campaign Closes Soon

MORE than 150 printing firms in 30 cities, located in 16 states, have made contributions to the Department of Printing Endowment Fund of Carnegie Institute of Technology.

Contributions of $5,000 each have been received from Thomas P. Henry Company, United States News Publishing Corporation, Bureau of National Affairs, and Judd & Detweiler, Incorporated. These supplement earlier contributions of $20,000 by Mergenthaler Linotype Company, and $125,000 by the United Typothetae of America, recently reorganized as the Printing Industry of America. Other contributions range in amounts from $100 to $3,000.

The purpose of the Printing Endowment Fund is to provide income which may be used to support scholarships, research, and instruction in the Carnegie Department of Printing. Income for scholarship purposes will be awarded yearly to worthy and needy students who otherwise might be denied the opportunity for college education in the graphic arts. Income for research purposes will be spent in making investigations relating to printing production and management.

The fund campaign will close on July 1, 1946. For each dollar otherwise subscribed by that date, the Carnegie Corporation of New York has agreed to add two dollars to the Carnegie Tech Endowment Fund. The balance to be raised by July is $200,000.

Persons wishing to make contributions or desiring further information should write to Glen U. Cleeton, Chairman, Printing Endowment Fund, Carnegie Institute of Technology, Pittsburgh 13, Pa.

## Equipment and Supplies

### Dry Powder Offset Eliminator

WINTON Engineering Co. has announced the Dry Powder Offset Eliminator for preventing offset of freshly printed sheets as they are printed. This dry powder machine operates by vibration and gravity. It is so placed over the press that finely divided microscopic particles of transparent powder are deposited on the sheet just before it is deposited in the delivery.

The machine consists principally of a narrow feed bin suspended over a fine screen. An electric motor is used to drive an eccentric, which in turn vibrates the feed bin and screen rapidly.

The feed bin is divided into compartments approx. 4 in. sq. In the bottom of each compartment are two holes through which the powder commences to fall as soon as the bin is vibrated. The powder then drops to the screen where it is broken up into a fine dust before falling onto the freshly printed sheet or board.

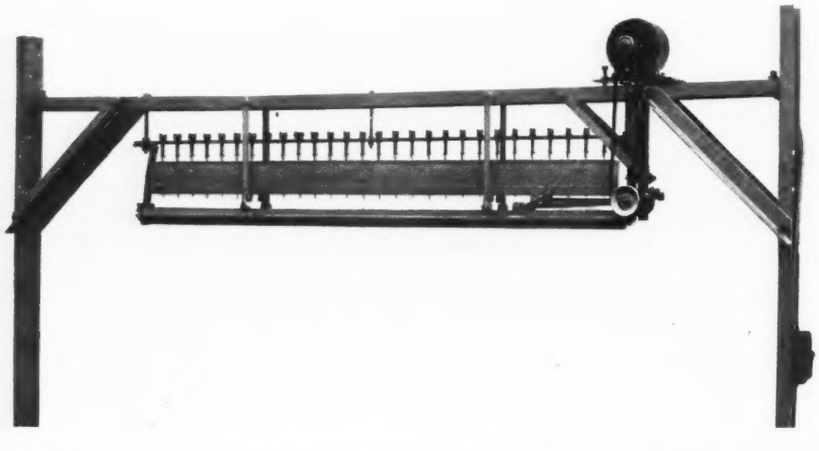
Although the machine is built to fit the individual press, it is entirely separate from the press, and can be moved to any other press of similar size.

The motor operates on 110 v., 60 cy., a.c. current. The motor can be plugged into any light socket.

Ink fountain adjustment of the flow of powder is provided.

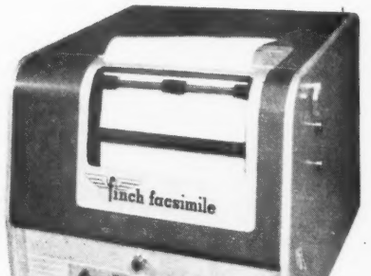
Manufacturer states the flow of powder can be accurately controlled at any point along the width of the printed sheet, as each feed hole (28 in the average machine) in the bin is fitted with a needle which in turn is controlled by a wing nut. When half-width sheets are printed, the feed bin compartment on the idle side of the press can be left empty.

Sponsor also states the powder used is non-toxic and non-abrasive. Operation is unaffected by high relative humidity. All fast moving parts are made with bronze bearings and fitted with compression grease cups. Automatic spring-driven hammer taps the screen with each vibration to keep the screen clean.



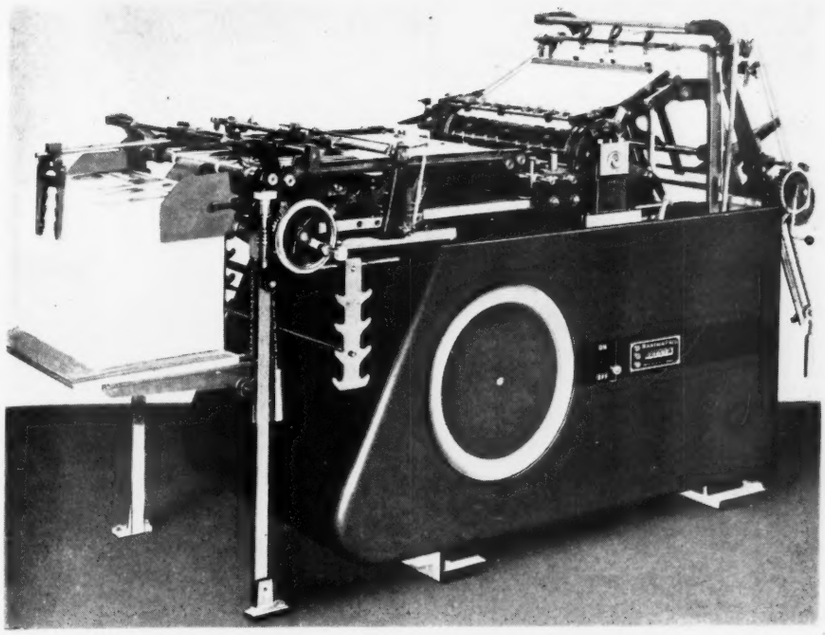
View of Dry Powder Offset Eliminator recently announced by Winton Engineering Co. The device is built to fit the individual press, but is entirely separate from it. Can be moved to another press of similar size. The Eliminator is supported from the floor on two legs or standards which have been cut off in this picture. This dry powder machine is operated entirely by vibration and gravity. Powder particles are microscopic in size and are transparent.

### Two New Facsimile Models




TWO new Facsimile models for transmission and reception of messages including photos, layouts and proofs; written material, pictures, sketches, maps, drawings and printed matter were announced recently. Capt. W. G. H. Finch, president of Finch Telecommunications, Inc., announced two new types of "duplex" facsimile units designed for point-to-point, mobile and other commercial communication services.

One of the new Finch models, FRS 141-A is a "duplex" unit which sends (and receives) messages by radio at a speed of 30,000 words per hr., or 2760 sq. in. of picture copy. The second new Finch unit FRS 140-A is a medium-speed "duplex" machine which has a speed of 9,600 words per hr., or 918 sq. in. of picture copy. This particular machine is ready to operate on any communication channel which will handle a subcarrier frequency of 1.3 kilocycles (300-2300 c.p.s.). Both units are identical in size and appearance and have push buttons for automatic framing and ejection of messages.



View of Banthin 13x20 Letterpress Cylinder Press. Max. sheet size is 13 in. by 20 in.; min. sheet size is 3 in. by 5 in.

Each of the models weighs approx. 75 lbs. and measures approx. 16 in. by 16 in. by 12 in. Both are designed for either 110 v. 60 cy. a.c. s.p.; 200 v. 60 cy. a.c. s.p.; 110-220 v. d.c. or battery power as required.

The new Finch facsimile units are encased in cast aluminum, combined with sheet metal with an enlarged front window for greater "faxogram" visibility.

The new units are promised for early production at the Finch plants. An illustrated bulletin is available upon request to Finch Telecommunications, Inc., or through *Printing Equipment Engineer*.

### Banthin 13x20 Letterpress Cylinder Press

BANTHIN Engineering Co., through John B. Webendorfer, has announced the Banthin 13x20 letterpress cylinder press. The press will accept a maximum sheet 13 in. by 20 in. and a minimum sheet 3 in by 5 in. Inside chase measurement is 19 $^{3}/_{16}$ in. by 13 $^{5}/_{16}$ in. The chase may be put in from the back or side of the press.

The weight of the press is 2500 lbs., which, manufacturer states, is sufficient weight to provide rigid construction throughout. The press is 41 in. high to top of the cylinder. From the floor to top of the feeder the distance is 52 in. Floor space of the press is 38 in. by 94 in.

The feeder having a capacity of 12 in. is not equipped with tapes, the sheet being carried down to feeding position by a suction arm direct to the head stop. The feeder is operated by a Leiman pump driven by a separate $^{1}/_{3}$ h.p. motor so the feeder may be set independently of the press drive motor.

The press is equipped with an extension pile delivery, which has a capacity of 27 in.

The inking system, manufacturer states, is sufficient to handle all classes of work, and consists of two rollers and one auxiliary roller.

A 1 h.p. motor drives the press. Both the press and feeder motors are positioned outwardly from the press at either end to facilitate servicing and still be out of the way of the pressman.

### Aluminum Foil Laminant

A LABORATORY report from Paisley Products, Inc. contains a description of the properties and suggested uses of a new synthetic thermo-plastic resin emulsion adhesive designed for foil lamination.

Recommended primarily for roll applicator machines, the new adhesive will handle all grades of aluminum foil to cellophane, acetate, glassine, bond, kraft, sulphite, chip-board and other materials, according to the manufacturer. The report also gives coverage data and price lists in all packings.

Copies of the complete report are available upon request to manufacturer direct or through *Printing Equipment Engineer*.

## Conference Dates

***ANPA Mechanical Conference***—William Penn Hotel, Pittsburgh, August 5, 6 and 7, 1946. Worth Coutney, Chairman; Walter E. Wines, Manager, ANPA Mechanical Dept., 370 Lexington Ave., New York 17, N. Y.

***Great Lakes Mechanical Conference***—Hotel Claypool, Indianapolis, Ind., October 27, 28 and 29. George Fuller, President, Stereotype Supt., Cleveland *Press;* Al Oberg, Secretary, Comp. Room Supt., Flint (Mich.) *Journal.*

***Illinois Newspaper Mechanical Conference***—Waukegan, Ill., during the fall. Dates to be announced later. President, Clarence R. Snethen, Superintendent, Waukegan (Ill.) *News-Sun;* Secretary-Treasurer, Howard Colton, Pressroom Foreman, Bloomington (Ill.) *Pantagraph.*

***International Association of Printing House Craftsmen***—Mount Royal Hotel, Montreal, Canada, Sept. 9, 10, 11. H. Guy Bradley, President, 5480 N. Illinois St., Indianapolis 8, Ind.; Herbert Threlfall, Secretary, 55 Pine St., Providence 3, R. I.

***International Trade Composition Association*** — Atlantic City, N. J., Sept. 19, 20 and 21. Lester A. Neumann, President; William Lickfield, Executive Secretary, 5th and Chestnut Sts., Philadelphia 6, Pa.

***National Graphic Arts Education Association***—Hotel Benjamin Franklin, Philadelphia, Pa. June 13, 14 and 15, 1946. Fred Hartman, Director, 412 National Savings and Trust Bldg., Washington 5, D. C.

***New England Mechanical Conference***—1946 conference dates to be announced later. George L. Green, President, Providence (R.I.) *Journal;* Walter C. Crighton, Secretary-Treasurer, New London (Conn.) *Day.*

***New Jersey Mechanical Conference***—Traymore Hotel, Atlantic City, N. J., June 15 and 16. President Geo. W. Holloway, Mechanical Supt., Elizabeth (N.J.) *Journal,* Box 261, Elizabeth, N. J.

***Northwest Mechanical Conference***—President, Wm. C. Brown, Mechanical Supt., Minneapolis (Minn.) *Star-Journal;* Vernon Eck, Secretary, 3725 48th Ave. S., Minneapolis 6, Minn.

***PNPA Newspaper Mechanical Conference***—Wm. N. Hardy, Mgr., Pennsylvania Newspaper Publishers' Assoc., 209 Telegraph Bldg., Harrisburg, Pa.

***Printing Industry of America***—Traymore Hotel, Atlantic City, N. J., September 9 through 12, 1946. James R. Brackett, General Manager, 719 Fifteenth St., N. W., Washington 5, D. C.

***SNPA (Eastern Div.) Mechanical Conference***—Exact dates to be announced later. C. Frank Mann, Chairman of the Mechanical Committee, c/o *Courier-Journal* and *Times*, Louisville, Ky.; Walter C. Johnson, Manager SNPA, P. O. Box 1569, Chattanooga 1, Tenn.

### The Letterpress Commercial Printer and Research*

SINCE the printing industry is becoming more and more conscious of the importance of scientific research, one sometimes wonders why letterpress commercial printers have not instituted a research program of their own. The answer isn't so difficult to find. The letterpress printer really is a fabricator of a finished product, the machinery and materials for which have been furnished to him by other sources of supply each one of which considers itself a separate and distinct industry.

The composing, press and bindery equipment he uses have been engineered and developed largely to suit his particular needs. The equipment makers maintain their own research and development departments staffed by engineers who work with the sales force to keep their ears keenly attuned to the needs of the printer. In the final analysis, when the commercial printer buys equipment part of the purchase price of that equipment is in payment for this research.

The same is true of the suppliers of photo-engravings, electrotypes and stereotypes and in many instances type composition used by the letterpress commercial printer. The printer receives a finished product and incorporates it in the form which he sends to the pressroom. With development of the recently established research programs by the photo-engravers and electrotypers the cost of that research will be included in the purchase price of the engravings and electrotypes.

Likewise, paper, rollers and inks come to him in more or less ready-to-use form. Thus the letterpress commercial printer could not possibly engage in research activities related to the many products used by him in fabricating finished job.

The cost of research in these various equipment and supplies items is a fair charge upon the industry. The printer is glad to pay his proportionate share because he knows that his future welfare in the last analysis is dependent entirely upon technological progress.

However, it does not seem that the letterpress commercial printer has been vociferous enough collectively in letting the equipment maker know what he needs. I wish to make the suggestion that perhaps one of the trade associations—preferably the Printing Industry of America, Inc., establish a Research Committee to poll its membership to determine what the industry wants. Then the Committee could report to PIA, which in turn can contact the equipment makers. As has been stated above, the equipment manufacturers keep their ears keenly attuned to the needs of the printer, but there would seem to be some advantage in collective opinion extended by his customers. We believe this suggestion to be worth trying.

*Abstract from address delivered by MacD. Sinclair before New England Conference for the Graphic Arts, Boston, April 1946.

### Multigraph Model 250

THE Multigraph Model 250 has been announced by Addressograph-Multigraph Corporation. According to the company, this new machine is the first direct process multigraph machine developed in many years.

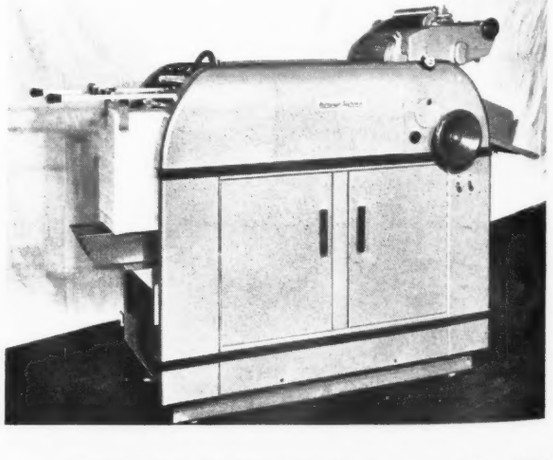
The machine is designed to reproduce facsimile typewriting from metal type through a ribbon or by the direct-inking process to letters, circulars, bulletins, business reports, stock lists, price lists, questionnaires, mailing cards, promotional material, letterheads, hand bills and the like. Rated speed of the new machine is from 3000 to 6000 i.p.h.

This direct process duplicator has a number of new features. It has a welded angle-iron frame rigidly cross-braced to insure permanent alignment, and an automatic vacuum-type paper feeder for handling weights and grades of paper from 13 lb substance bond to cardboard $\frac{1}{16}$ in. thick.

It is equipped with a hand-feed table for use when work cannot be fed automatically and has a built-in power drive with centrifugal clutch, a variable speed control with a range of from 3000 to 6000 revolutions per hour, and a timing device which makes feeder and jogger timing faster and more positive.

Other new features include ink fountain control, an ink roller cleaning device, faster ribbon feed, micrometer platen adjustment, wide paper stop fingers, needle and oilite bearings and a cabinet stand which has doors on the operating side and storage racks for ink rollers, tools and frequently used supplies.

The Model 250 occupies an overall floor space 27 $\frac{1}{2}$ in. by 66 in. and has an operating height at the conveyor board of the automatic paper feeder of 35 in. and an overall height of 46 in. It weighs 515 lbs. and is equipped with leveling feet at each corner.



View of new Multigraph Model 250. Rated speed is from 3000 to 6000 i.p.h.

### 15 Lb. Carbon Dioxide Fire Extinguisher

RANDOLPH Laboratories has produced a new trigger-touch 15 lb. $CO_2$ extinguisher that is portable. Grasping the unit by its arched-steel handle, the employee removes the extinguisher from its bracket, and carries it with one hand. The other arm is free to remove obstacles and open doors while en route to the scene of action.

On approaching the fire, the operator grasps the nozzle handle with his free arm, aims it at the base of the flames. Depressing the thumb-trigger a penetrating blanket of carbon dioxide gas is discharged. An 8 quart gasoline fire was smothered in 9 sec. under official Underwriters' Laboratories fire test.

### Announces New Paper Cutter

THE new Seybold "Sixty" line of paper cutters and spacers was announced April 17 by H. A. Porter, Vice President in Charge of Sales. The new Harris-Seybold Co. machines were designed by W. R. Spiller, Chief Engineer of the Seybold Division.

Mr. Porter states a new knife action, rugged knife bar, and increased clamp lead make possible straighter and cleaner cuts at an increase of 15 per cent in speed of operation. Shear angle has been increased to 53 deg. to insure less clamp pressure. Knife adjustment is accomplished by a new pull bar that speeds up the positioning of the knife to the cutting stick. A knife bar with a 36 deg. bevel is extremely effective in splitting work.

Clamp pressure control enables the operator to obtain the correct amount of pressure for any type of job. Further convenience of operation is provided by a toe tip treadle booster.

Illumination of the table and hand wheel has been accomplished by the installation of a new hood. The pile of work is lighted under the clamp without shadow from the knife.

A new heavy duty multiple disc clutch that can be quickly adjusted has been provided. Repositioned lubrication points and Zerk fittings have been located in accessible points. Included are a mechanical two-hand starting device, non-repeat mechanism, adequate safety guards, and safety washers.

The "Sixty" line of cutters and spacers range in size from 44 in. to 84 in. models.

## First Postwar Press Shipped by Hoe

THE first of the large rotary web presses to be completed by R. Hoe & Co. since the end of the war has been shipped to the St. Louis *Post-Dispatch*, Arthur Dressel, Vice President and General Manager, announced on Friday, April 26.

"This 12-unit rotogravure press is noted for its versatility," he said. "It is capable of printing in three sizes, full page, tabloid or supplement size, in a combination of monotone and color. One of its unique features is its ability to produce 32 pages of tabloid or supplement in full color on all pages. In the design are the latest advances in photo-electric, automatic and remote control register mechanisms, full speed splicing mechanisms and high speed enclosed ink fountains with circulating ink systems.

The St. Louis *Post-Dispatch* machine weighs about 275 T. and measures 125 ft. in length. Work on it was started in 1941, but higher priority war contracts called a halt until some months ago when work was again resumed.

Presses being built now include a five-unit, 80-page machine for the Kalamazoo *Gazette* and the Muskegon *Chronicle* (both of the Booth chain in Michigan); a four-unit, 64-page machine for the Los Angeles *Times*; a seven-unit, 56-page machine for the Honolulu *Star-Bulletin*, and two additional units for the Atlantic (Ga.) *Constitution*.

### Mechanical Executives with Portfolio*

I WOULD like to discuss briefly the status of executives in plants who are charged with production responsibility—the mechanical executives who have important office in printing plants but who work without portfolio. These executives should be placed on a parity with management. In some cases, management has failed to extend to these executives moral and financial recognition to which, by sound reasoning, they are entitled.

In the past, management's reasoning with respect to the status of its production and mechanical executives has been fallacious. Management asserts that mechanical department executives don't have business experience and they don't know how to talk to people; neither are they adept at working for the interests of management in the plant. In fact, they are 100% mechanical. My answer to this is that if management wishes to do so, it can find ample material without difficulty. However, it may be necessary to develop likely mechanical executives to fit into the general organization. Simply, it's a question of being willing to permit these men to "flap their wings." How does anyone know he can't do certain things if he is not given an opportunity to try?

There is reason to believe that non-recognition of mechanical executives as important links in plant management will not always exist. A number of plants in various parts of the country have raised the status of their mechanical executives to a position of parity with management. It is to be noted that production in those plants is excellent.

Having studied the relationship of the mechanical executive to plant operation and management for a long time, it appears to me that the system of predicating a mechanical executive's salary on a percentage basis is not desirable. Such a method can't do anything other than develop selfishness in both the employer's mind and the mind of the mechanical executive. It also tends to break down morale among workmen in the plant. The custom of rewarding a mechanical executive with a percentage of what he is able to save in previous excess production costs of a given amount, or a percentage of the annual volume of business executed by the firm leads to personal selfishness—both on the part of the manager and the mechanical executive. A straight salary alone, or a salary and annual bonus, together with 100% managerial recognition of the status of the mechanical executive have worked wonders with production in many plants. Through wise counsel and friendly advice by management any employer can relieve himself of many headaches and consequently will be free to devote his best efforts to important business matters. If qualified executive material is not available, it is granted that the employer should be able to select executives who have the mental makings. Having established the new relationship, the employer can develop the executive through friendly counsel and advice.

Management should also heed a definite trend with respect to workers. Progressively, the worker has been doing "less and less for more and more money." Management's problem through competent mechanical executives is to attempt to at least prevent further per-man reduction in output, and also to make it possible to secure greater production through modern equipment, plus intelligent plant layout whereby the worker can do his work with minimum foot and arm travel.

Another thought with respect to that new equipment you will install is that you cannot secure maximum benefit from it unless you establish efficient supervision. Efficient supervision can only be provided by management's recognition and dependence upon the mechanical executive.

*Abstract from address delivered by MacD. Sinclair, before New England Conference for the Graphic Arts, Boston, April 1946.

### LNA Western Office Moves

The Western office of the Lithographers National Association at 29 South LaSalle St., Chicago, moved May 1 to new offices at 155 North Clark St., Chicago 1, Ill., Suite 906-907. Here Gordon C. Hall, western manager for LNA, assisted by Mrs. Elsa S. Riddell and Miss Theresa Vander Veen will continue servicing western members. The Association's Employment Bureau has assisted in placing 118 veterans for "on the job training" with members.

# *Engineering Methods*

## *dominate plant of Waverly Press, Baltimore, Md.—Interesting discussion about operation of scientific journal and book letterpress printing plant*

**By EDWARD M. PASSANO***

**Waverly Press, Baltimore, Md. Abstract of address delivered before New England Conference for the Graphic Arts, Boston, April 1946.*

TO US at the Waverly Press precision printing means that we must so control the accurately predetermined tolerances of each step of the printing process so that subsequent adjustment becomes unnecessary, or at least causes a minimum of delay. It has been said that our organization is America's most highly engineered printing plant. We produce periodicals for the scientific field. This has grown to a point where we produce some 90 odd journals and do the books—mostly the tough technical jobs—for approximately 15 publishers. While I feel that this is somewhat different from the ordinary run of the average plant, in a way many of our problems are similar to yours.

On February 11 we started our present arrangement, consisting of two shifts of 40 hours and one of 37½ hours weekly, rendering continuous production from 8 o'clock on Monday morning until 1 p.m. Saturday.

We arrange to rotate our shifts every four weeks. Our pay schedule is based on one differential for employees who work two shifts, and on a greater one for those who work all three. Our top journeyman scale is $1.60 an hour, which for the deep South is considered sufficiently respectable. We operate an open shop. Our long-established policy is two-weeks' vacation with pay for employees of one year or more seniority; seven holidays with pay; sick benefits; and good working conditions.

Another general policy is that we attempt to obviate as far as possible the need for unskilled labor and to use instead whatever modern mechanical equipment is available to do this type of work.

We are a 100% Monotype plant and have been for a great many years.

### Training Operators

For years we have hired and trained our own girl keyboard operators. During the war, with additional facilities needed, we were forced first to call on our friends in the industry to help out in the way of sub-contracting, and later to organize our former top-notch, all-around operators who had left previously on account of family conditions, to work for us in their homes. We have installed keyboards with little individual air compressors and have complete keyboard setups in six private homes. These are all former Waverly Press operators. Since last summer we have been successful in hiring returned veterans who had been trained by the Army or the Navy as typists or teletype operators in the Signal Corps. With short training they have turned into satisfactory keyboard apprentice operators and will undoubtedly develop into all-around operators.

We have two Monotype 15 x 17 casters. We have, in addition, six of the regular caster machines and one specially designed for sorts. With these we turn out about 16 million ems per month. This is accomplished to a certain extent by our ability to run our casters at 165 to 170 r.p.m., which is 15 to 20 revolutions faster than in the average plant. This is done by the use of our own specially designed mold oilers and by the great care given to the accuracy of the depth of drive of mats, the wear of mats, and the control of the temperature of the metal, which is accomplished to a large extent by the use of the Kemp carburetor.

### Handling Proofs

With regard to our proof room facilities I feel that we differ to a certain extent from other plants by selecting our personnel usually from high school or college graduates, largely girls, with no experience in the printing industry. They are taught exclusively by us to know what we wish them to know in the matter of style and detection of error. We give galley proofs only one reading and revision is done not after correction but upon completion of collation. This saves many steps in additional proofs, time lost for waiting, time in transit, time of revision before collation can begin. In the same manner, authors' alterations are not revised and galley-proofed but go directly into makeup. We find that what little re-makeup is caused by faulty alteration is so negligible that it is offset by the time and cost saved in not revising. We have no revision of press sheets. They go immediately from imposition to the pressroom where the press foreman gives an actual pagination OK from the imposition jacket.

### Pre-makeready on Photo-engravings

We are exclusively a letterpress plant and since a great many of the medical textbooks that we print are highly illustrated, we have the question of preparing the halftones or line cuts so that when they reach the pressroom they can be printed with a minimum of delay. In order to accomplish this we buy all our engravings unmounted. We mount them according to a definite formula, depending upon the nature of the illustration, to a given tolerance by the use of Hacker block leveler, Hacker gauge and careful underlaying of the cut. All these procedures of course would be useless if the weather conditions within the plant did not allow for so little variance in the height of wood as to make such premakeready a profitable venture.

*(Continued on Page 58)*

### Year-Around Air-Conditioning

**WE feel strongly that any complete fulfillment of a precision program is closely allied with air-conditioning. We maintain complete year-around air conditioning both with regard to temperature and humidity in all manufacturing departments. This is accomplished by York ice refrigeration helped out by silica gel for dehumidification in summer, and for the winter gas-fired low-pressure steam boilers with the humidity maintained by the use of ordinary sprays in the air-conditioning ducts.**

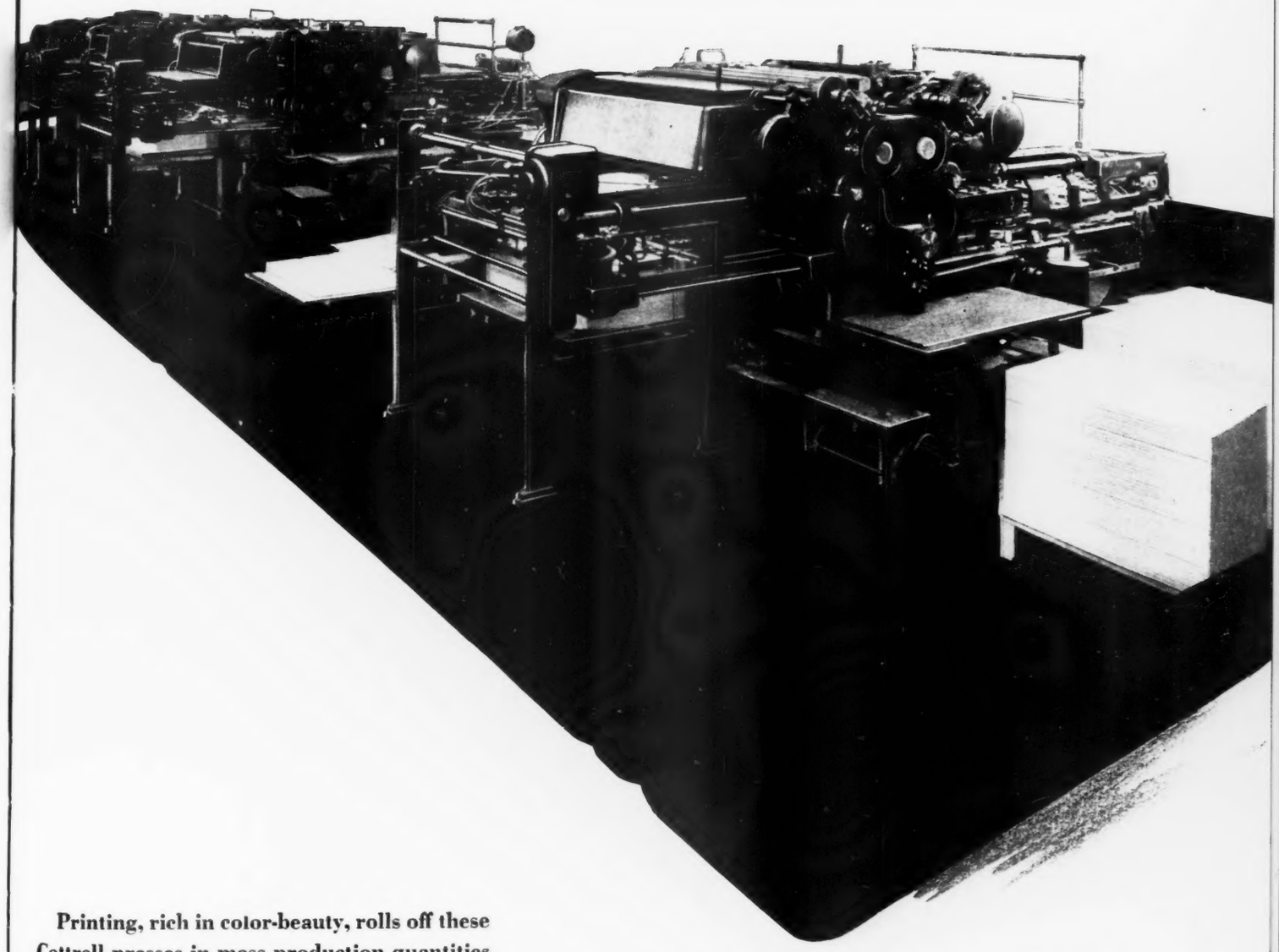
*Abstract from address by Edward M. Passano, Waverly Press, Baltimore, Md., at New England Conference for the Graphic Arts, Boston, April 1946.

### Waverly Planning Department

**THERE is another general concept which we feel is essential and that is one of planning. By this we mean maintenance of the central planning department responsible for the issuance of instructions in detail for every step of production down the line. This does not mean that we feel that it is unnecessary for a journeyman to have brains, but we prefer to have him use them in producing the highest quality possible in the shortest time without the necessity of thinking what style, what side-guide margin, what ink, what type face, etc., is necessary or proper.**

*Abstract from address by Edward M. Passano, Waverly Press, Baltimore, Md., at New England Conference for the Graphic Arts, Boston, April 1946.

# Mass Production on Display...



**Printing, rich in color-beauty, rolls off these Cottrell presses in mass production quantities with individual perfection, giving to the printing industry a flawless display of art.**

**The proven versatility of this two-color sheet-fed rotary makes it the press for varied jobs. Printing one or two colors, up to 5,500 sheets per hour, or four color process work run "twice through," it is ideal for direct mail folders, booklets, and two and four color publication printing.**

**Here's a press that combines speed, register and superior ink distribution with lower operating costs ... a press for the kind of quality and quantity production you like to achieve.**

**C. B. COTTRELL & SONS CO.**
*Westerly, Rhode Island*

**New York: 25 E. 26th St. • Chicago: Daily News Bldg., 400 W. Madison St. • Claybourn Division: 3713 N. Humboldt Ave., Milwaukee, Wis. • Smyth-Horne, Ltd., 13 Bedford Row, London W.C. 1, England**

Cottrell

ER 91 YEARS OF GROWING WITH THE PRINTING INDUSTRY

# EXECUTIVE ¶s

Amos W. Bishop, Manager of the Printing Department of the University of Chicago, is retiring on June 30 from

Amos W. Bishop, Manager of University of Chicago Press, is retiring June 30. He is well known among Printing House Craftsmen.

active duty. During Mr. Bishop's career he has had newspaper and commercial printing experience. In 1917 he was engaged by the manager of the University of Chicago Press, A. C. McFarland, as estimator and contact man in the office. Thus he embarked upon a career which for 29 years afforded him a large measure of security and happiness. He considers it an honor to have been in the position made vacant by Mr. McFarland's retirement in 1935. Highly significant have been his efforts in the modernization and expansion of the printing plant. It is extensive in capacity; both letterpress and photolithography are employed, including full facilities for making offset plates. Large-scale mechanical composition is made possible by six Monotype keyboards and five casters and one Model 26 Linotype (which produce more than sixty million ems of type annually), augmented by an amply "faced" composing room. There are four high-speed automatic presses for small work up to 19x25 in., one offset press, and six cylinder beds. There are also complete pamphlet, edition, and library binderies. One of the unusual features is a vault for the storage and protection of thousands of printing plates and type pages, which are "safely filed but instantly obtainable"—a particular pet of Amos Bishop. The Press is rated as the largest of all American university presses, and embraces a staff numbering many men of exceptional ability. The Printing Department, under the direction of Amos Bishop and his staff of able assistants, is efficiently producing work in volume as well as in high standards of exactness and scholarly distinction. The many divisions of the University call upon it for assistance in the production of books, journals, and pamphlets of scientific character, besides a constantly increasing list of literary works, special forms, and even works in such complex format as Greek, Hebrew, Arabic, Syrica, and Egyptian hieroglyphics. For many years Mr. Bishop has been active in the Craftsmen's movement. Since joining the Chicago Club of Printing House Craftsmen in 1931, he has wholeheartedly given of his enthusiasm and effort to the educational advancement of Craftsmen. Starting on the Educational Committee, he served through the vice presidencies and in 1935 was elected president. During these years of his membership he has missed few international conventions, serving at several as delegate from his home club. Mr. Bishop says while he has no definite plans for the future, he is hopeful that his knowledge of printing processes and equipment may be useful in an advisory capacity on a part-time basis to someone.

Dr. Ellery H. Harvey of Sun Chemical Corp., New York, N. Y., was elected president of the Institute of Food Technologists at their sixth annual convention held in Buffalo, N. Y., on March 19, 1946. Dr. Harvey succeeds Prof. F. W. Tanner of the University of Illinois, who served as president for the past year.

Steidinger Press, Inc., color printers at 34 Hubert St., New York, N. Y., announces that George W. Scott has joined the firm in a managerial capacity. He will be assistant to Christian Steidinger, general manager, and Herman Steidinger, superintendent of plant. Mr. Scott is a graduate of Dartmouth College. He has a well rounded background of sales and administrative experience, having been affiliated for the past 18 years with the National Association of Insurance Agents.

E. L. Walters, vice president and purchasing agent of the Western Newspaper Union at Omaha, Neb., recently announced the appointment of Darwyn C. Jackson as promotional manager, printing machinery division of the purchasing department in Omaha. Mr. Jackson first joined WNU in Kansas City in 1937. In 1938 he was appointed manager of the WNU Omaha Local Branch, where he made many friends for Western Newspaper Union, until he joined the Army. Mr. Jackson was discharged from the Army Air Forces in February this year and shortly after returned to WNU.

William H. Diamant, of the Diamant Typographic Service, 191 Lexington Ave., New York, N. Y., was presented with the Congressional Selective Service Medal, Button, Decoration and Certificate of Merit, in the name of the Congress of United States. It is interesting to note that the President himself, and Ex-Governor Lehman were presented with the Selective Service Medals in Washington recently by General Hershey—and every former Governor who is now a member of Congress or the Senate were likewise honored.

Appointment of seven field representatives to district and branch sales offices of SKF Industries, Inc., has been announced by R. R. Zisette, general sales manager. New field representatives are J. K. Redding, Philadelphia; L. E. Jacobs, former Navy lieutenant commander, Buffalo; W. S. Corneille, Milwaukee; F. O. Hamlet, Chicago; G. E. Mayhew, Cleveland; B. J. Fraher, Detroit, and C. L. Eberlein, Atlanta. In addition, Zisette said T. I. Haley and A. C. Barth, field representatives, respectively, in the Portland and Dallas offices, had rejoined SKF after service in the armed forces.

The appointment of Roger Westling as manager of the new factory of the Howard Flint Ink Company, at 6100 Avalon Blvd., Los Angeles 3, Calif. has been announced by Howard Flint. Westling is well known to printers and publishers, through his 26 years of service in the ink industry. He has a thorough knowledge of inks for all types of printing and lithographing. Other recent addi-

**During the latter part of March two Graphic Arts executives from Zurich, Switzerland, paid a visit to Cleveland. This picture was taken during a brief visit to the plant of the Forbes Ink Co. Left to right, the men in the picture are Walter Martens, Chief Chemist, Forbes Ink Co., Willy Strub, President of the Board, Print USA Joint Stock Co., Manessestrasse 46, Zurich, Switzerland, and Robert E. Schön, Assistant Manager of the company. Both visitors expressed themselves as being delighted with American hospitality. They were here to investigate Graphic Arts processes, plant management, and new equipment.**

# "I Can't Afford Not To—"

"I've ordered two Blue Streak Linotypes to complete the modernization of our composing room and will ask you to schedule their delivery* along with the many others you have 'on the hook.'

"Actually, I am buying these Linotypes not merely because I want to, but because in all honesty *I can't afford not to!**

"Our other Blue Streak Linotypes are turning in such superior records—both in quality and quantity—that there just isn't any sense in our keeping the two old mechanical members of the group any longer. They've been good workers, but you can have them. I can't afford not to have the newest and best* Linotypes you make."

*We couldn't have written a better letter ourselves, so we're printing it—as a matter of fact, we can't afford not to.

BROOKLYN 5, N. Y. LINOTYPE 29 RYERSON STREET

NEW YORK CITY · BOSTON · CHICAGO · NEW ORLEANS · SAN FRANCISCO
LOS ANGELES · CANADIAN LINOTYPE LIMITED, TORONTO

*Linotype Caslon Old Face Series*

FOR OUR DIAMOND ANNIVERSARY

# *A gem of a cutter . . . the new*

The Seybold Sixty line comprises the safest, most accurate, dependable cutting machines that Seybold has ever built. Thoroughly tested for top performance, the new models are more productive, less fatiguing to operate. The "Sixty" line will include seven sizes from 40" to 84", offered (a) as Standard equipment, (b) with Power Back Gauge, or (c) as the Electric Automatic Spacer. The result of Seybold's sixty years of specialized cutting machine experience, the new models incorporate completely new knife action, new clamp action, new clutch, new clamp pressure control and other important new operating and maintenance-reducing features. Seybold Sixty cutting machines are the outgrowth of

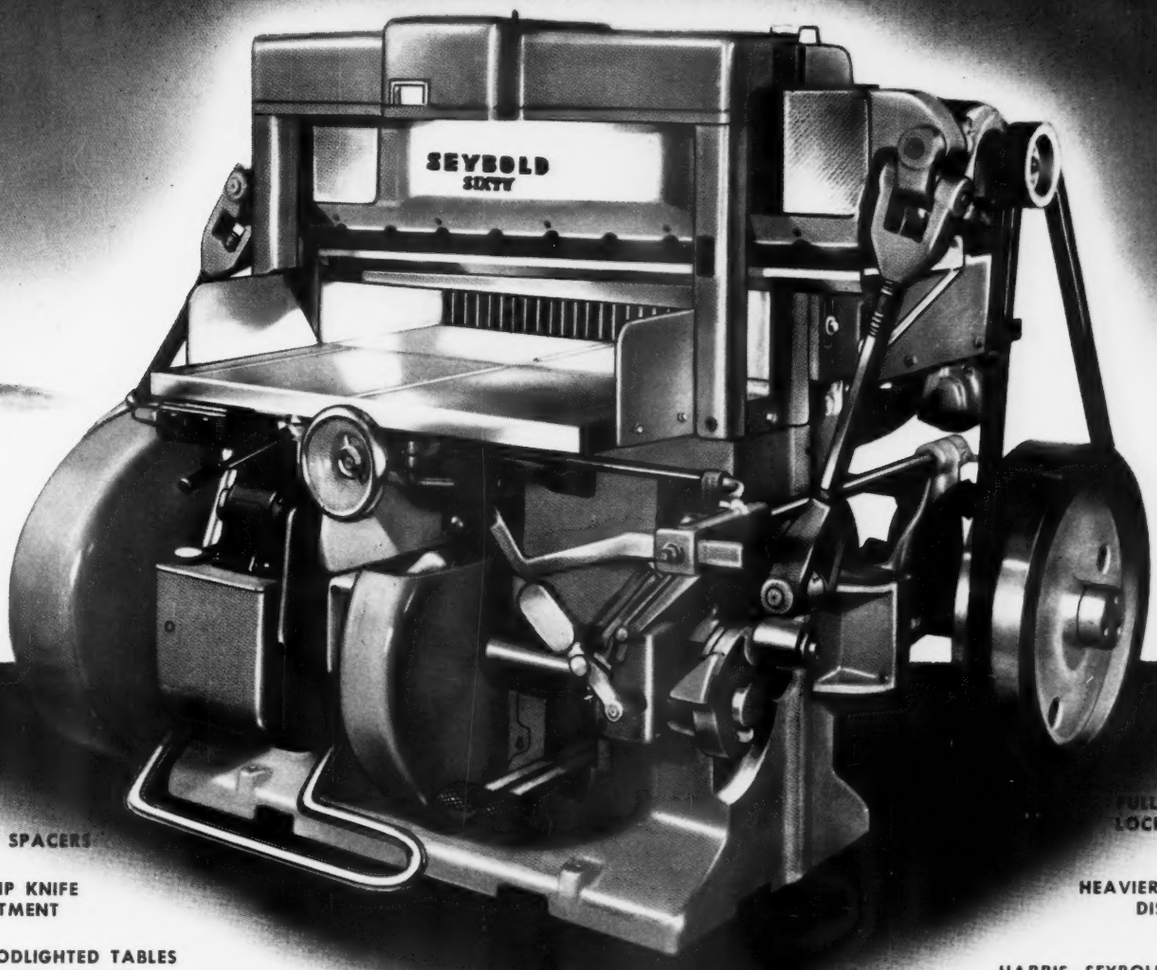
***Engineering the human element at Seybold***

| The Man | The Machine |
|---|---|
| **GREATER OUTPUT OF MORE UNIFORM WORK** | Fewer trim cuts, less air in the pile, due to increased shear angle with greater clamp lead • 15% faster, cleaner cutting; improved knife action • Fewer clamp-marked sheets because of infinitely variable clamp pressure within the full working range • Quicker knife adjustment for less down time. |
| **GREATER PERSONAL PROTECTION** | Automatic interlocking safety devices • Two-hand, throw-in device • New, heavy-duty multiple disc clutch • Ample safety guards. |
| **GREATER COMFORT AND CONVENIENCE, REDUCED FATIGUE** | Seybold toe-tip treadle booster, conserving energy • Convenient clamp pressure gauge constantly in view • Floodlighted table and gauges, reducing eyestrain • Readily accessible lubrication points, lowering maintenance costs. |

*Harris-Seybold Company ·:· General Sales Offices ·:· Cleveland 5, Ohio*

EVEN SAFER · MORE ACCURATE · MORE DEPENDABLE

# SEYBOLD SIXTY




FASTER AUTO SPACERS

FINGER-TIP KNIFE ADJUSTMENT

FLOODLIGHTED TABLES AND GAUGES

SCIENTIFICALLY DESIGNED KNIFE ACTION

LOW MAINTENANCE METAL CLAMP FRICTION UNIT

EFFORTLESS CLAMP PRESSURE CONTROL

SEYBOLD TOE-TIP TREADLE BOOSTER (Extra on smaller sizes)

FULLY AUTOMATIC INTER-LOCKING SAFETY DEVICES

HEAVIER DUTY MULTIPLE DISC CLUTCH

HARRIS-SEYBOLD PRECISION CRAFTSMANSHIP

## HARRIS-SEYBOLD

HARRIS PRESSES · SEYBOLD CUTTERS · OTHER GRAPHIC ARTS EQUIPMENT

*Lithographed in the U.S.A. on a Harris Offset Press*

HARRIS-SEYBOLD COMPANY
4510 E. 71 Street, Cleveland 5, Ohio

Send me the 6-page descriptive folder on the new Seybold Sixty line of cutting machines.

NAME _____

ADDRESS _____

tions to Flint's California organization are Lee Bradshaw and Charles Fitzthomas.

Emory Worthington, formerly of the engineering department of the Goss Printing Press Co., Chicago, has joined the W. F. Hall Printing Co. as mechanical engineer. Mr. Worthington recently returned from England after six months in that country.

Hector E. Delbare, formerly sales manager of Sam'l Bingham's Son Mfg. Co. and an employee of that company since 1925, died suddenly at his home in Chicago recently. He was in his 78th year. Mr. Delbare learned his trade as pressman in Quincy, Ill. For many years he was Chicago manager of the Queen City Printing Ink Co. Funeral services were held in Chicago, burial took place in Quincy.

Robert Dunn, of Sam'l Bingham's Son Mfg. Co. in Atlanta, has been made St. Louis manager. Carl W. Nelson, formerly with that company in Chicago and St. Louis, resigned in March.

Walter F. Green has been promoted to assistant manager of the Timken Roller Bearing Company's Division of Research and Development while Joseph M. Roshong has been named superintendent of the Division of Research and Development, company officials announced. Harley J. Urbach has been appointed Works Engineer, taking over the former duties of Mr. Green. Mr. Green started with the Timken organization in 1935. Green received his education at the University of Cincinnati and is a member of the American Society of Mechanical Engineers. Mr. Roshong started working for the company in February, 1923, in the Engineering Dept.

At the annual stockholders' meeting of Fenwal, Inc., of Ashland, Mass., two new directors were elected. They are

Fenwal's director of engineering, Edward J. Poitras.

John M. Storkerson appointed general manager of Fenwal, Inc.

Edward J. Poitras, Director of Engineering, and John M. Storkerson, General Manager, both of Holliston, Mass. Mr. Poitras has been with the Office of Scientific Research and Development, Washington, D. C., since 1940. Previous to that he was control engineer for the 200-in. telescope project at the California Institute of Technology, Pasadena, Calif. Mr. Storkerson, was formerly associated with the Westinghouse Electric Corp. and with the Aluminum Co. of America.

F. R. MacFadyen has been transferred from the Milwaukee office to the Canton engineering department of The Timken Roller Bearing Company as industrial engineer in which capacity he will act as assistant to S. M. Weckstein and Paul Haager, company officials announced. A graduate of Cornell University, MacFadyen began working for the company in 1935. He is a member of the American Society of Mechanical Engineers.

Gerry D. Herrard is now a member of the Process Color Plate Co., at 522 So. Clinton St., Chicago, according to announcement made by President Gradie Oakes the latter part of April.

Edward T. Samuel, formerly superintendent of A. S. Gilman, Inc., Cleveland commercial printers, is now associated with the Hersh Printing Co., 2530 Superior Ave., Cleveland. Mr. Samuel is treasurer of the International Association of Printing House Craftsmen.

Albert Krueger, for many years chief composing room machinist at the Cleveland *Press*, retired from active duty on Friday, April 19. A testimonial dinner, sponsored by Composing Room Superintendent James Kelleher, at which about 36 associates of Mr. Krueger were present, was held on Saturday, April 20. On April 22, the *Press* chapel quit work for an interval to wish Mr. Krueger well. At this time, Editor Louis B. Seltzer and Business Manager Jack Lynch spoke in tribute to Mr. Krueger's long service with the *Press* and to his reliability and skill as a composing machinist and fellow worker. At the chapel meeting $200 on behalf of the *Press* and a substantial purse made up of contributions from the chapel were presented to him. It is Mr.

**Past Presidents' Night, Minneapolis Craftsmen's Club**—At a recent meeting (February) of the Minneapolis Club of Printing House Craftsmen, the Past Presidents were honored. Present President of the club is Nels Lundell of Lund Press, Inc. A number of past presidents attending the meeting are shown in the accompanying illustrations, as follows:

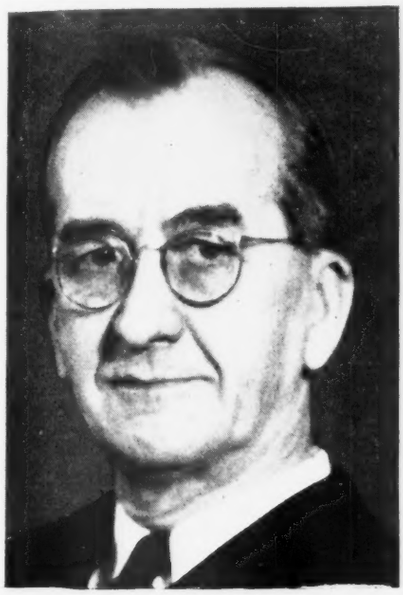
Left-hand picture, left to right: Hugo M. Speier, 1937; Archie Getchell, 1932; Wallace B. Ostroot, 1945; W. O. Lund, 1926; Allan Pahr, 1934 and Fred Ripczinski, 1929.

Right-hand picture, left to right: Ray Jordan, 1944; Walter Brunner, 1939-40; L. C. Nelson, 1941; Clarence A. Groettum, 1935-1936; Frank Loritz, 1942-1943 and J. H. Kingsbury, 1938.

Krueger's intention to visit his daughter and family in Springfield, Mass., after which he will go to the West coast.

Appointment of Daniel Beisinger as manager of the saw division of R. Hoe & Co., Bronx, N. Y., printing press and saw manufacturers, was announced recently by Joseph L. Auer, president. Mr. Beisinger, formerly manager of the west coast sales and manufacturing branches of the saw division, succeeds Edward Foster who recently retired after 50 years of service with the company.

*Printing Equipment Engineer* extends its congratulations to Harvey R. Capps. Many newspaper printing establish-



Harvey R. Capps has completed 40 years of service with the Jacksonville (Fla.) *Times-Union*.

ments are proud of the skill of their chief composing room machinists. Such a paper is the Florida *Times-Union*, Jacksonville, Fla. In its issue of Friday, April 12, appeared a feature story about Harvey R. Capps who has completed 40 years of service with that paper. With the article was printed a 3 col. picture showing Capps at work before one of the 30 Linotypes of which he has charge. Capps is rated as one of the top notch line-composing machinists in the United States. In addition to supervising maintenance of the *Times-Union's* battery of machines Capps has found time to develop and patent a number of improvements for the machines with which he has worked so long. When he came to the plant 40 years ago he took charge of the then eight-machine plant. Meanwhile the plant has expanded and prospered, as has Capps. Soft spoken and capable, Capps has played a prominent part in the mechanical life of Southern newspapers. He has served as a director of the Eastern Division of the Southern Newspaper Publishers Mechanical Conference. He has attended all of the conferences so far. He lives at 807 Cedar St. and has taken an active part in the development of the community of Murray Hill.

## Here's the Montreal International Craftsmen's Convention Committee

The 27th annual convention of the International Association of Printing House Craftsmen will be held at Hotel Mont Royal, Montreal, Canada, on Sepetmber 9, 10 and 11. From From among the members of the Montreal Club this convention committee to make complete arrangements has been selected. The educational program, however, is being formulated under the supervision of J. Homer Winkler, Chairman of the Educational Committee, c/o Battelle Memorial Institute, Columbus, Ohio.
Identity of the various committee members shown in this picture is as follows:

Front row, left to right: Nat Gazin, recording secretary; Neil B. Powter, convention co-chairman and program; R. Lorne Cummings, convention co-chairman and reservations; John W. Morrell, president, Montreal Club and publicity; Peter Merson, treasurer.

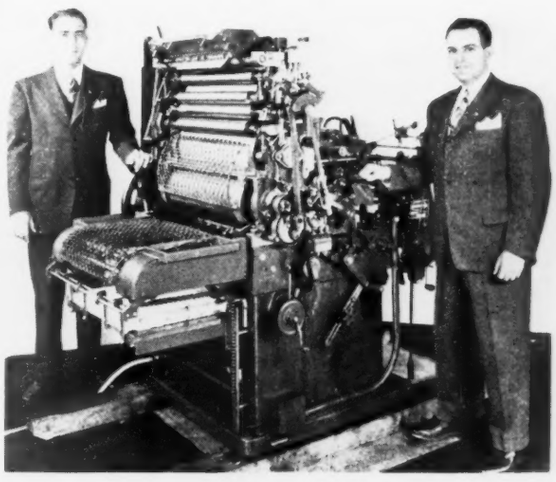
Second row: Frank Sickinger, visitation; George Bonnemer, reception; Henri Riopel, souvenirs; James Ross, printing; Les Flynn, registration; A. E. Loveland, house and donations.

Third row: Stan Orser, registration; W. Austin Jackson, entertainment; Karl C. Baker, hospitality; Jack Hutchinson, transportation.

Fourth row: Alex Farquharson, donations and financial advisory; A. H. Barker, exhibits; Roland Frechette, signs and displays; Art B. Bell, attendance; James Calvert, information.

Not in picture: Eric O'Connor, (ex-International president) International liasion, and Basil Parsons, U. S. representative of donations.

**Veterans Get First Offset Press** — The first American Type Founders "Chief" offset press delivered for civilian use in northern New Jersey has been installed by the Quality Press, 71 Washington St., Paterson, along with other ATF offset equipment.



Quality Press is a new organization staffed and managed by veterans of World War II. The production manager, Clifford B. Robinson, spent almost five years in the Army as an officer in an engineer typographic unit, where he managed, an offset printing unit for Air Forces reproduction services. The sales manager, Ralph W. Wolff, spent a like period with the Army as an infantry officer. The other employees of Quality Press also served in the Army, some in capacities directly allied with the lithographic trade.

## *Craftsman's Mecca*

"MONTRÉAL - VOTRE RENDEZ-VOUS EN SEPTEMBRE" — WHAT'S THAT MEAN?
WHAT'S IT MEAN? WHY THAT MEANS "MONTREAL YOUR RENDEZVOUS IN SEPTEMBER" - AND WHAT A TOWN - LITTLE PAREE! - LOTSA FUN - LOTSA CRAFTSMEN!
GOODIE MOORE

27th Annual Craftsmen's Convention, Montreal, Sept. 8-11

## Color Technique at Chicago *Tribune*

EDITOR'S NOTE—*There's a lot of speculation about color printing in regular editions of the newspaper. Particularly, since the Chicago* Tribune *is now enabled to process its own color films the following discussion about recent* Tribune *accomplishments will be of great interest to our readers. On smaller papers, the process would be relative to that of the large paper. The important point brought out in this article is that the* Tribune *has demonstrated that four-color process pictures can be printed on a news basis.*

ON Monday morning, April 22, the Chicago *Tribune* published in its final editions an entire picture page of natural color photos of the Chicago Easter parade simultaneously with the news story of the parade the day before. On Saturday, April 20, the *Tribune* had delighted Chicago's north side baseball bleacherites with a full color picture of their idol, Center Fielder Andy Pafko, on Page 1 of the Sports Section.

Color reproductions of the Easter parade rolled off *Tribune* presses within 13 hours after the exposed color transparencies reached the *Tribune* dark room. Twelve *Tribune* photographers, working in two-man teams with regular Speed Graphic news cameras and Ansco color film, took the pictures Easter morning. At 10:50 a. m., the last of the exposed films reached the *Tribune* dark room where 13 processing steps were completed in 85 min.

After drying, the transparencies went to the editorial art room where editors chose the pictures to be assembled so that the entire page could be handled as a unit in the color engraving department which received the transparencies at 1:45 p. m. That department made red, yellow, blue, and black color separation negatives of the page from the transparencies, and printed those negatives on sensitized copper plates for processing by etchers, finishers, and routers. The first completed copper plate, the yellow, was delivered to the stereotypers at 7:40 p. m., only 4 hrs. and 50 min. after the yellow separation negative had been completed. The red plate reached the stereotypers at 8:25 p. m., and the blue and black plates at 9:30 p. m.

The stereotypers made 20 casts of each color plate—80 casts of the page. Two plates of each color were required on each press, and eight presses were used for the Monday edition. Two extra sets of stereotype plates were available for use in case of damage to any of the plates on the presses.

During the last five years the daily *Tribune* has provided its readers with color cartoons, color maps, and occasional color picture pages. With its Easter color page, the *Tribune* demonstrated that it not only can print four-color pictures on high-speed news presses, but also that it can obtain and process color photos in time to print them along with news stories of the events photographed.

## Hoe Re-elects All Officers

AT A meeting of the Board of Directors of R. Hoe & Co., New York, April 10, all officers were re-elected. Officers are: Harold M. Tillinghast, chairman of the board; Clifton N. Bradley, vice chairman; Joseph L. Auer, president; Arthur Dressel, vice president and general sales manager; T. S. Chadeayne, vice president and treasurer; J. R. Kingan, assistant treasurer; C. E. Littleton, secretary; J. M. Lehmann, assistant secretary, and William F. Byrne, comptroller.

At a stockholders' meeting the following directors were elected: To represent the Class "A" stockholders for three years—Neil P. Cullom, attorney for the company; William A. Canaday, president, Paul and Co., Inc., New York, and Morton Jenks of Jenks, Kirkland and Co., Philadelphia.

To represent the common stockholders for one year—Thornton C. McCune, of Adams & Co., Chicago, and Harold W. Danser, of Moors & Cabot, Boston.

Jenks, McCune and Danser were candidates of the independent committee.

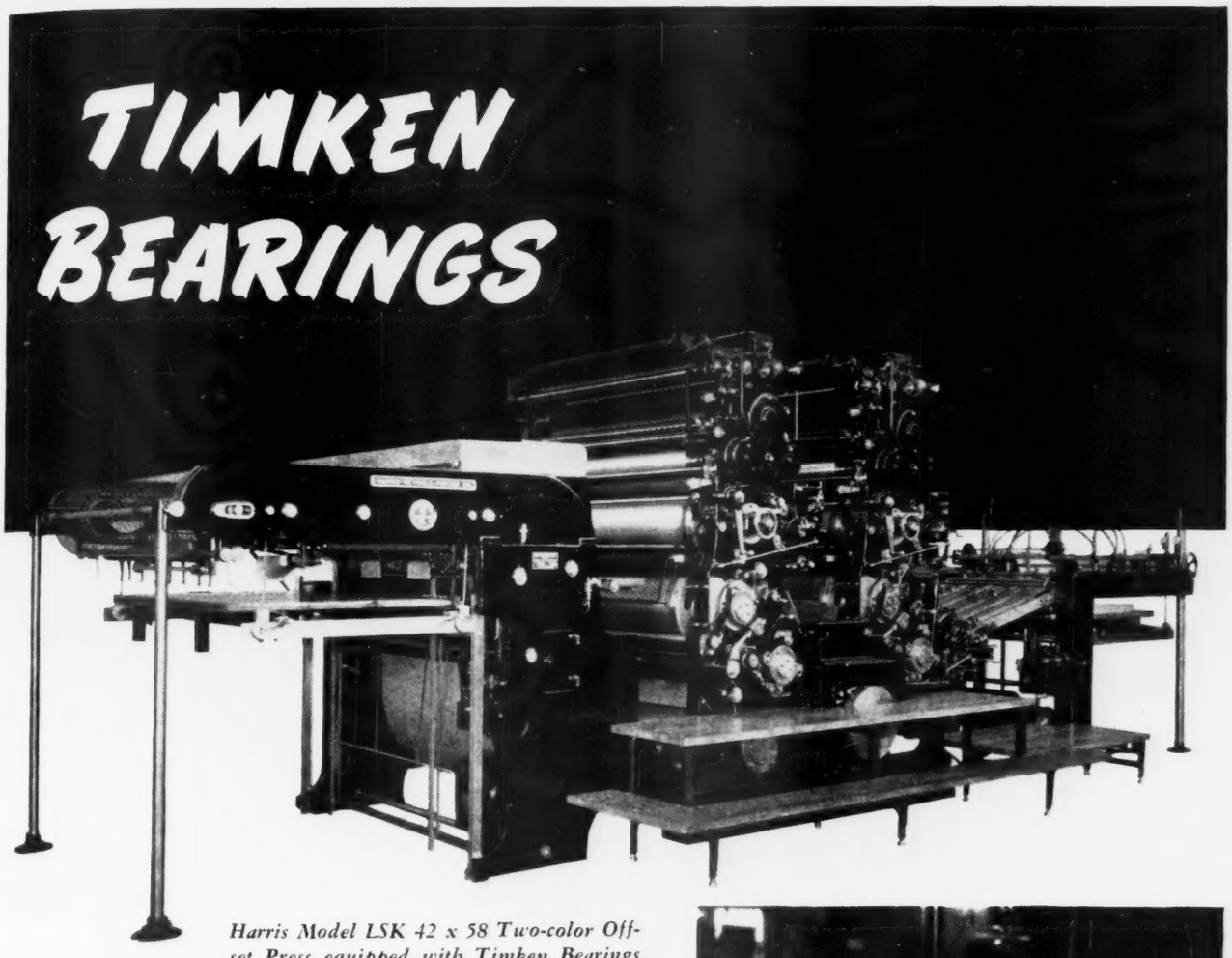
The stockholders rejected a proposal to require specific stockholder authorization for all compensation paid by the company to directors or to any enterprise with which they are affiliated. The stockholders approved a proposal limiting to stockholders the right to amend or adopt by-laws of the corporation.

### Name Changed to Harris-Seybold Co.

At a special meeting March 28 stockholders approved a change in name of the Harris-Seybold-Potter Co. to Harris-Seybold Co. and elected L. P. Wasserman, New York, N. Y. as an additional director, according to R. V. Mitchell, chairman of the board. Stockholders also approved revised by-laws and fixed the authorized number of directors at ten.

In making the announcement, Mr. Mitchell pointed out that the name "Potter" had lost its significance since the principal products of the company at the present time are Harris offset lithographic presses and Seybold precision paper cutters. Operating divisions of the company are located in Cleveland and Dayton.

# TIMKEN BEARINGS



*Harris Model LSK 42 x 58 Two-color Offset Press equipped with Timken Bearings on plate, impression and blanket cylinders.*

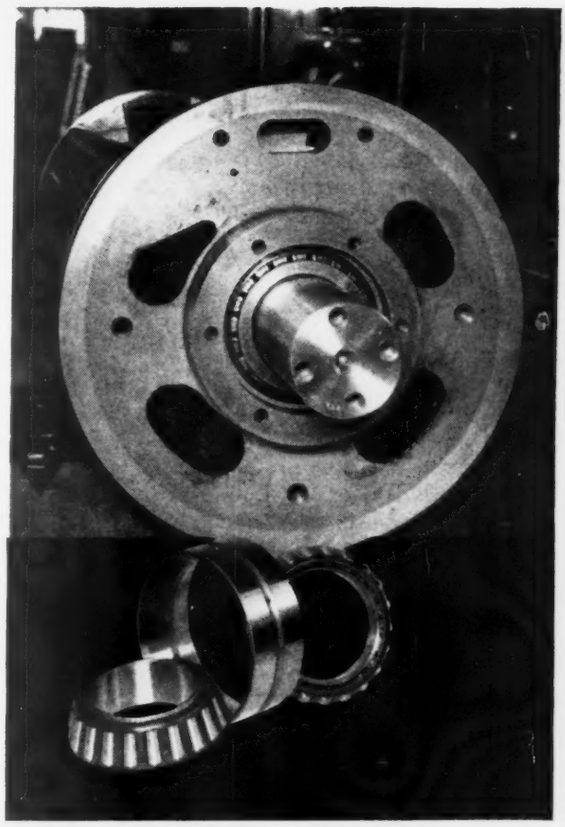
With plate, impression and blanket cylinders mounted on Timken Tapered Roller Bearings, modern offset presses have important functional and economic advantages over machines not so equipped. They can operate faster with greater accuracy; require less attention for lubrication and upkeep; have greater endurance and longer life expectancy.

Specifically, the manufacturers of Harris Offset Presses list the following reasons for the continuing use of Timken Bearings in their equipment: (1) elimination of lateral roll movement under all temperature conditions; (2) substantial reduction of inching load; (3) long bearing life and reduced servicing; (4) simplified lubrication — no lubricant leakage problems.

Timken Roller Bearing benefits are not, of course, confined to offset presses. They also are widely enjoyed in letterpress equipment, including some of the largest high-speed newspaper presses ever built.

Not every tapered roller bearing is a Timken Bearing; look for the trade-mark "TIMKEN" on every bearing you use. The Timken Roller Bearing Company, Canton 6, Ohio.

**TIMKEN**
TRADE-MARK REG. U. S. PAT. OFF.
**TAPERED ROLLER BEARINGS**



*Application of Timken Bearings on blanket cylinder of Harris Offset Press.*

# Reports of ANPA Mechanical Committee on research and the ANPA Mechanical Department show constructive activity

OFFICIALS of the American Newspaper Publishers Association presented their annual reports at the convention held in April at the Waldorf Astoria Hotel, New York. Two of these are of interest to readers of *Printing Equipment Engineer*. The reports of the Mechanical Department, W. E. Wines, Manager, and the Mechanical Committee, Worth Coutney, Chairman are published in abstracted form below.

### Report of ANPA Mechanical Committee

The activities of the Mechanical Committee for the past year have been confined, for the most part, to the subject of Research and to the formulating of plans for the Mechanical Conference to be held in Pittsburgh August 5-7, 1946. The mechanics of this year's mechanical program in Pittsburgh is designed to please executives from large and small newspapers.

On the matter of the ANPA Research program, considerable work and progress has been made by your Mechanical Committee. During the past year, your Research Committee has interviewed a number of candidates for the position of Research Director.

Within the next few months, your committee will obtain the services of a man, who may or may not eventually head up the Research Program, to make a survey both within and without the industry to determine the possibilities of research and report his findings and recommendations. This survey will demonstrate what has been accomplished in past years by any and all newspapers and by predecessors, and will enable us to avoid duplication of effort.

Much of this information may be obtained from the files of the Patent Office in Washington, from technical books, trade publications, manufacturers of newspaper printing machines, from suppliers of materials that go into newspaper production, from the ANPA Mechanical Bulletins issued during the past years and from a vast amount of material which may be found in the files of Mr. Wines, Manager, Mechanical Department. Some of the newspaper suppliers are very much interested in the ANPA project and have offered the use of their libraries, patent processes, etc., to the committee. Their cooperation in this plan, your committee believes will be 100%.

It is the consensus of your committee that the right kind of Research Program will cost money—considerable money—and that it should be headed by a man well qualified to obtain the results that may be expected from such a program. Scientific research is not a short undertaking—it is a long range objective, and the investigation of only a few of the subjects suggested in answers to a questionnaire sent to publishers a few months ago, may take many months to complete. Newspaper publishers are well aware that if a research project will solve only one or two problems it will be well worth while.

With only sufficient money to provide for the ground work of a proper research program, your committee urges the ANPA membership to prepare now for the provision of funds with which to carry the Research Program to a successful conclusion. If this cost is distributed over the entire ANPA membership, it will not be a financial burden to any one of the publishers all of whom will eventually profit thereby.

The Mechanical Committee believes that the field of research and the approach to the important technical phases of the newspaper publishing business through the annual Mechanical Conference is its most important contribution to the membership.

Respectfully submitted,

WORTH C. COUTNEY, Chairman

| | |
|---|---|
| John L. Blake | L. J. Griner |
| John A. Burke | M. A. Hagan |
| A. H. Burns | Howard J. Lamade |
| T. A. Corcoran | John W. Park |
| Edwin H. Evers | C. H. Ruth |
| | J. J. Shea |

### Report of Mechanical Department

Since 1941 up to a few months ago, the major portion of the work of the Mechanical Department has related to government orders as they affected newspaper supplies. A few orders affecting newspaper supplies are still in force—those relating to lead, tin and antimony—and there is always the possibility that a new order affecting newspapers may be issued such as the order on construction which after being revoked late in 1945, was reissued March 26, 1946.

### Purchasing Agent Handbook

The Purchasing Agent Handbook proved a valuable service and was the

### Bronze Stamping Leaf *

BRONZE stamping leaf, frequently designated as imitation gold leaf because of a resemblance in color to genuine gold leaf, is furnished the bookbinder in two different forms. One type is known as flat leaf, the other as roll leaf.

Flat stamping leaf is made by treating bronze dust or powder with certain waxes or resins to form thin sheets. In addition to binding the small particles of powder together, the waxes serve a further purpose in that they tend to form tarnish-resistant films covering the surfaces of the bronze particles. One side of the sheet is then treated with sizing material to aid adhesion to the surface stamped when heat and pressure are applied during the stamping operation.

The roll leaf type is made by dusting bronze powder on to long rolls of cellophane or glassine, which have been specially treated with an adhesive material and a low-melting point wax. The final manufacturing operation consists of applying a sizing material over the bronze surface.

In stamping roll leaf, heat must pass through the cellophane or glassine tissue to produce a transfer of the bronze and wax to the stamped fabric. For this reason the wax used on the leaf must melt at a comparatively low temperature. Such waxes, as a rule, furnish less protection against tarnishing than the higher melting waxes used on flat leaf.

The comparative resistance of different bronze leaf samples to tarnishing may be determined by exposing stampings in a sealed chamber for 16 to 18 hours to an atmosphere containing 1 part of hydrogen sulphide in 600 parts of air. In tarnishing, the hydrogen sulphide combines chemically with the copper in the bronze to form a black copper sulphide. Another method of testing is to expose the stampings to a constant temperature of 100 degrees Centrigrade for several hours. This heat accelerates oxidation of the bronze, with the formation of copper oxide.

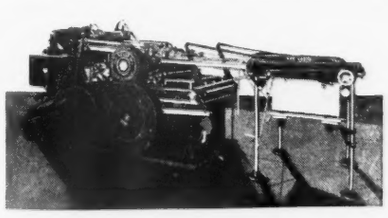
Aluminum stamping leaf is prepared similarly to roll bronze leaf except that aluminum powder is substituted for bronze powder. This material also tarnishes, but the oxidation product, aluminum oxide, is white, so closely resembling the aluminum powder that marked discoloration is not observed.

Genuine gold leaf, on the other hand, does not tarnish because of the unoxidazable nature of pure gold. It may be obtained in the unsized leaf form or in the form of sized rolls backed with either cellophane or glassine.

*M. S. Kantrowitz (GPO), in *The Capital Craftsman*. He is chairman of the Washington (D.C.) Craftsmen's Research Committee.

# *The Pioneer Still Leads...*

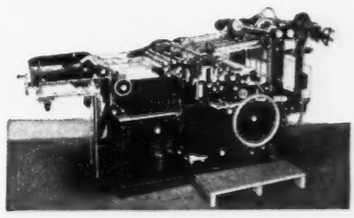
**THE 1946 ATF KELLY** • Pioneer of automatics, the ATF Kelly still stands first in range of the work it can handle; in quality, speed, and steady production; in its accessibility and convenience in presswork; and in its smooth and profitable operation. Ask your ATF Salesman for details, or write to us for commercial samples of actual runs that show what the ATF Kelly can do for you.



**ATF No. 2 KELLY** *(Illustrated above)*
handles sheets from 8½"x11" to 24"x35"

**ATF No. 1 KELLY**
handles sheets from 8½"x11" to 22"x28"

**ATF C-KELLY**
handles sheets from 7"x10" to 17½"x22½"



**AMERICAN TYPE FOUNDERS** ATF 200 Elmora Avenue, Elizabeth B, New Jersey

subject of commendation by those who used it. The Handbook became obsolete Nov. 26, 1945. Seventy-one individual sheets were issued covering 24 subjects.

### Mechanical Conference

The 1946 Conference will be held in Pittsburgh August 5, 6 and 7. Headquarters will be at the William Penn Hotel, which has excellent convention space, the entire 17th floor being devoted to this purpose.

Allotments have been obtained from six Pittsburgh hotels of a sufficient number of rooms to care for approximately 900 persons. All assignments of these rooms will be made through the Mechanical Department, and the hotels refer all requests for reservations to the Department.

The program has not been completed but many excellent suggestions have been offered and are receiving consideration of the Committee.

### Utilizing Side Runs

Newsprint Bulletin No. 110-1945, Dec. 6 carried report of the Task Group on U. S. Production containing a suggestion that newspapers might secure some additional tonnage of white paper by altering their roll lengths so as to accommodate the paper mills, thereby reducing the loss of production through side runs. The Mechanical Department checked with several mills. The conclusion drawn from data obtained was that no broad application of the Task Group's suggestion seemed feasible but that, if any side-run paper was to be utilized, the problem was one between an individual newspaper and his supplying mill.

The Kansas City (Mo.) *Star Times*, shortly after this, advised that one of its supplying mills could furnish some one-page-wide rolls out of side runs thus adding to available tonnage. The mechanical men of the *Star* devised a method whereby two of these rolls could be run side by side, on a Cline reel, in place of one two-page-wide roll, or one of them could be run alongside a regular half-roll in place of the usual three-quarter roll.

Further investigation developed the fact that other newspapers have worked out methods of running two rolls side by side in the same position. Although this had been done to run two half-rolls side by side—say a white and a pink—two one-page-wide rolls could be run side by side by the same method. Details of the operation depend upon the type of press equipment available.

### Mechanical Bulletins

Twenty-three Mechanical Bulletins have been issued since the 1944 convention.

### Newsprint Waste

Quarterly reports on newsprint waste continue. A conservative estimate made before the war showed that newspapers which regularly report waste figures are saving well over $1,000,000 a year.

### New Developments

In spite of rumors and predictions about post-war developments in printing, there is very little to report. The steam-set ink is a promising development but is still in the experimental stage. If it should prove successful and can be supplied at a price which publishers can afford to pay, it bids fair to reduce greatly or even eliminate trouble with first-impression printing. Another new ink was brought to our attention not long ago, a small quantity of which was made by a concern not in the ink business. This is an ink, claimed to dry very fast—between the first and second impression printings. Arrangements were made for a trial in a newspaper pressroom. Although the trial was not satisfactory, the company believes the formula can be modified and a satisfactory newspaper ink can be made.

An inserting and stuffing machine has been installed in one plant, and although it looks promising, there are still details to be worked out before the performance is entirely satisfactory. Those behind the project are confident of ultimate success.

# Rubber or Synthetic Rollers for Newspaper Presses?

By CARL G. BINGHAM*

*President, Sam'l Bingham's Son Mfg. Co. Abstract of paper submitted to PNPA Newspaper Mechanical Conference, Harrisburg, Pa., April 1946.

WHETHER natural or synthetic rubbers are or are not more suitable for making rollers for newspaper presses would be simply an academic question at the moment, because the use of natural rubber in making all types of printing press rollers has been prohibited by the War Production Board since the latter part of 1943 and hence all rubber rollers, since that time, have been made with synthetic rubber, and there is no lessening of the controls over the use of natural rubber at the moment which would permit its use.

However, there is no hard and fast rule which would indicate that natural rubber or synthetic rubber is best in all cases for use for this purpose. The controlling factor is the kind of ink in which the roller is to work, and as you know, there are many new varieties of inks being put on the market, some of which work well with natural rubber and some with synthetic rubber; and some that will work with natural rubber won't work with synthetic, and vice versa. Therefore, the roller maker has to be informed as to the type of ink being used and sometimes the sample of ink itself, and with the information to be gleaned therefrom, he can make rollers which will fulfill their functions.

In general, we might say that without the use of some test, procedure or device, the user of the printers' roller would not be able to detect whether it had been made of natural rubber or synthetic rubber. Of course, if he were skilled in processes or could employ someone to inform him, he would easily find out, but the user is primarily more interested in the service he gets from the roller than in the material from which it is made, and that is proper. It is the roller maker's worry, not his.

The utility of the rubber roller or the synthetic roller is dependent upon the ink used—and at the moment we have to put up with synthetic rubber, even if natural rubber were better—and in every case it is not.

Furthermore, it has not yet been fully determined that the rubber roller is the answer to the pressman's roller problem. It has some qualities that are better than composition rollers, and the composition roller has some printing qualities not possessed by the rubber rollers, but the answer is in a third material and we may hear more about that in due course.

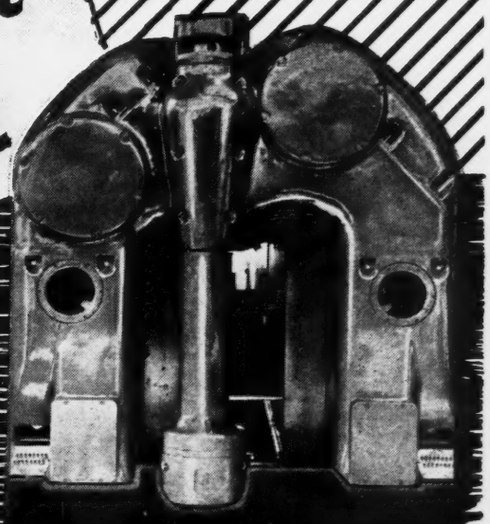
Rubber does not naturally handle ink. It is attacked by oils, and inks contain oils. The only way that rubber can be made to handle ink is by adding many ingredients to the compound.

On the other hand, a glue-glycerine roller naturally handles ink. It is a natural means of transferring ink from the ink fountain to the type faces. Unfortunately, it has defects in that at high temperatures it gets soft and may melt, and it is also affected by atmospheric and climatic conditions, requiring the rollers to be changed several times a year.

But what about something that has the printing qualities of composition and none of its defects, and which naturally handles ink, which rubber doesn't? At the moment we are in a world of change.

# the ULTIMATE in Color Flexibility

# The GOSS



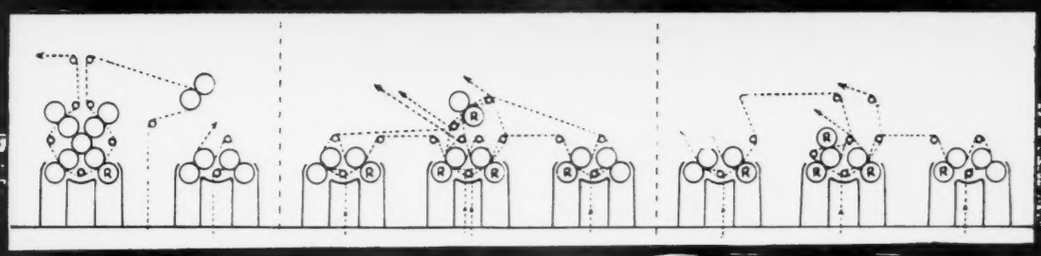
The new features embodied in the HEADLINER are so varied that we have perhaps neglected to point out that it also possesses the maximum in flexibility for R. O. P. color. In other words, in purchasing a HEADLINER you buy a press meeting your present day requirements—knowing that you can at any time expand the color possibilities without changes in press structure.

You can accomplish this in many ways from the simple method of reversing one or more cylinders with portable fountains to the addition of half or full color decks.

Obviously with such flexibility for color it would be impossible to show all combinations in the limited space here available. Therefore we suggest you write us your specific requirements and we will show you how simply it can be done—economically, with GOSS HEADLINER unit construction.

A specific press including arrangements as diagrammed below can be built up giving you all the color facilities you desire and which will keep in register and do quality printing with one to 4 colors on newspaper stock.

***That's why we call the HEADLINER—"Press of the Future in a World of Color!"***



**GOSS PRINTING PRESS COMPANY**

**1535 S. PAULINA STREET, . . . CHICAGO 8, ILL.**

**NEW YORK • SAN FRANCISCO • LONDON, ENG.**

# Tests *reported by manufacturer indicate that Zomag (Dowmetal) line and halftone engravings possess maximum wearing qualities under repeated stereotype mat molding*

**By W. ROY MANNY***

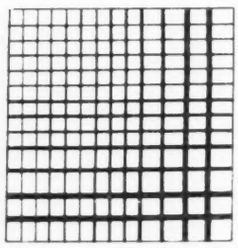
**President, Atlantic Zinc Works, Brooklyn, New York.*

ENGRAVERS are becoming familiar with the use of Zomag (Dowmetal) plates for engraving. Engravers using Zomag say that it can be processed in a manner similar to zinc, using either cold top or hot top enamel, with a consumption of about half as much acid to obtain the same depth as on zinc and at a slightly greater etching speed. From experience in Germany where etchers have become used to handling magnesium, it was found that instead of using an acid bath one half the strength of the usual zinc bath, in order to get equal etching speed with zinc, that familiarity in handling the metal will permit an increase in acid strength and hence a considerable decrease in the necessary time of etching, still maintaining an economy of acid. Zomag weighs one fifth as much as copper and one fourth as much as zinc. In other words, five magnesium sheets in a pile weigh the same as one similar copper sheet or four zinc sheets.

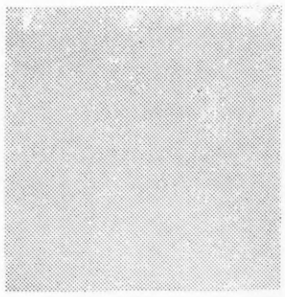
In the last article I wrote on this subject I mentioned, in regard to wearing qualities, "that it stands up better than zinc and compares favorably with copper for direct printing runs." In order to get data on this important subject, the NEA Mat Service Syndicate, in Cleveland, recently carried out tests which establish the wearing qualities of Zomag.

Previous similar tests and comparisons between various engravers' plates have shown that the effect of long printing and long mat runs will produce an accurately corresponding amount of wear on the plates being tested. Due to the fact that stereotype matting wear is much more severe than printing wear, more definite conclusions can be arrived at in a mat

(*Continued on Page 46*)



A.—Original line test specimen.



B.—Original halftone test specimen.

Fig. 1.—Same size reproductions of line and halftone cuts used in stereotype matrix rolling test to determine durability of Zomag (Dowmetal) photo-engraving plates

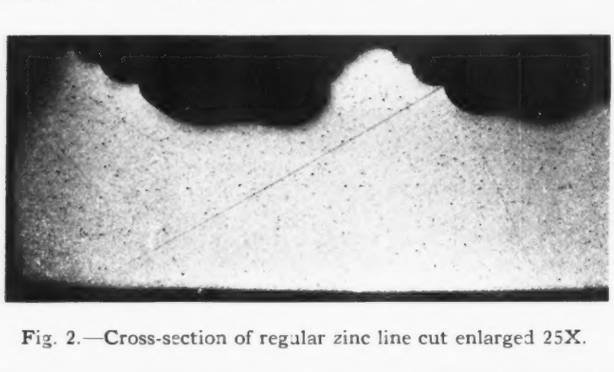


Fig. 2.—Cross-section of regular zinc line cut enlarged 25X.

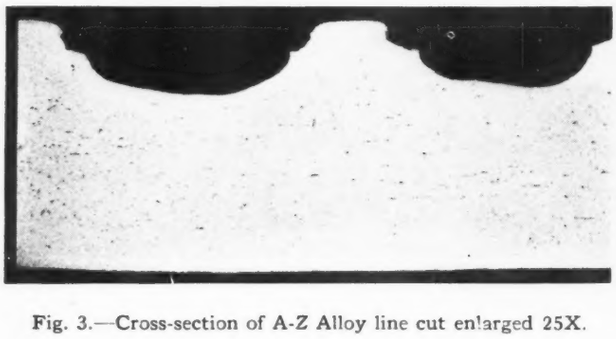


Fig. 3.—Cross-section of A-Z Alloy line cut enlarged 25X.

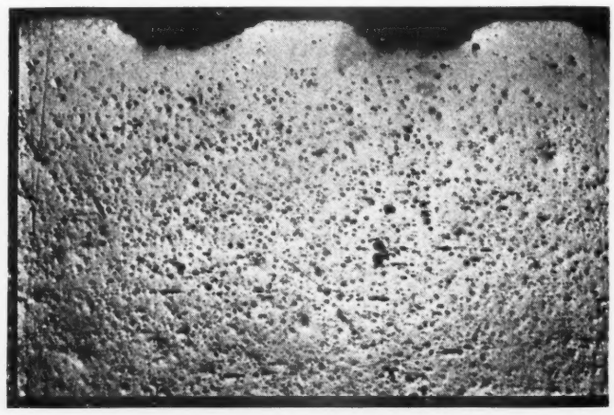


Fig. 4.—Cross-section of A-Z Alloy halftone enlarged 50 X.

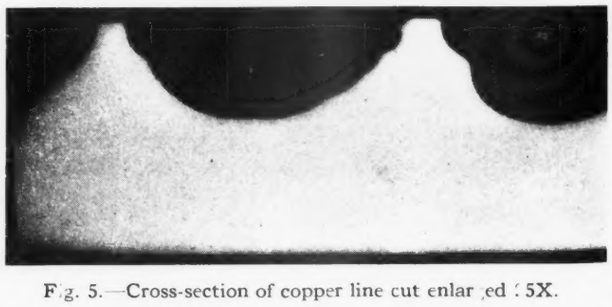


Fig. 5.—Cross-section of copper line cut enlarged 50X.

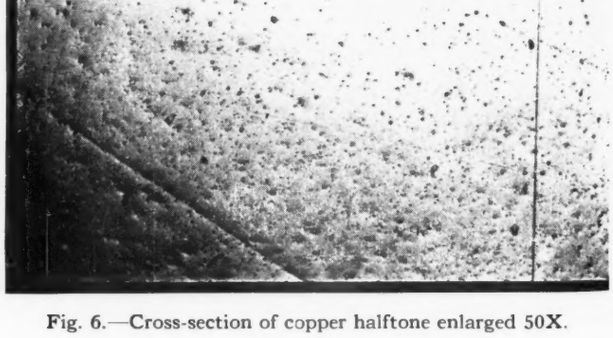


Fig. 6.—Cross-section of copper halftone enlarged 50X.

# Patents

## For The Graphic Arts Field

The patents reported here are those issued on March 19, March 26, April 2, April 9.

**All new patents for the Graphic Arts are reported exclusively for Printing Equipment Engineer by Invention, Inc., an industrial patent research organization in Washington, D. C. Invention, Inc., presently has the only staff in the country that examines, in the U. S. Patent Office, the complete printed copy, drawing by drawing and page by page, every one of the several hundred new patents issuing each week. Printing Equipment Engineer is the only trade publication in its field offering a report based on this complete coverage. For copies of the patents listed here, specify the patent numbers and send 10c for each separate patent (stamps not accepted) to the Commissioner of Patents, Washington, D. C.**

No new patents have been issued for the heading "Binding, Cutting, Perforating" or for the heading "Composing Room Equipment" in the four weeks covered by this report.

### Feeding, Folding and Delivery:

2,396,706. WEB REGISTER MECHANISM for use with printing presses equipped to feed a continuous register-spotted web to a rotating cylinder for performing a printing or other operation on the web in predetermined relation to the register spots. A first electrical circuit has a photoelectric device responsive to the occurrence of a spot to produce current changes in the circuit in synchronism with the spot occurrence. An electro-responsive device is connected with the photoelectric device but is normally prevented from being actuated by current changes in the photoelectric circuit. A second circuit is connected to the electro-responsive device in mechanical synchronism with the rotation of the cylinder to render the electro-responsive device responsive to current changes in the first circuit. Invented by Hermann Kott, West Orange, N. J. Assigned to Publication Corp., New York, N. Y., by mesne assignments. Application February 21, 1942. 10 claims.

2,397,044. CONVEYOR SPACER FOR NEWSPAPER COPIES immediately on their delivery from a rotating fly having pockets from which the copies are delivered successively as they reach their down position. The copies are spaced by each overtaking and engaging with one of a series of spacing stops traveling beside the conveyor in the same direction. If a jam occurs, a trigger adjacent to the conveyor belt section is actuated in response to the articles flexing the belt beyond a given degree so as to stop the conveyor. Invented by Harold H. Rapley, Bedford, England. Unassigned. Application July 7, 1944. 8 claims.

### Miscellaneous:

2,397,827. METHOD AND APPARATUS FOR PRESSING, DEAERATING, AND DRYING which is an improvement in the art of tri-color pigment printing as applied to the so-called carbro process in which a sheet supporting a transferable image and a receiving medium to receive the image are brought together in face-to-face relation to form a "sandwich." The assembly is then processed to remove water and air from the sandwich and to effect the transfer of the image to the receiving medium. The improvement comprises placing the sandwich on a planar air-impervious supporting surface and placing an air tight flexible blanket over the sandwich to form, in cooperation with the support, a sealed chamber enclosing the sandwich. The chamber is evacuated to withdraw air and moisture from the sandwich and to cause the blanket to press the sandwich uniformly and firmly against the support to effect the transfer of the image. Invented by Charles W. Williams, Louisville, Ky. Unassigned. Application May 25, 1942. 1 claim.

2,398,294. SHEET INDEXING MEANS intended to provide an improvement for newspapers and other periodicals which will permit the reader to readily locate any page desired by merely running his thumb along stepped portions of the pages. Slits or cuts in each page of a periodical are approximately three-quarters of an inch in from the edge, the slits being located in stepped relation in successive sheets or pages. Thus tab-like portions are formed for the pages respectively when the edges are deflected downwards for indexing purposes. Invented by Maurice A. Embertson, Chicago, Ill. Unassigned. Application May 9, 1945. 4 claims.

### Plate Making:

2,397,285. RELIEF PRINTING PLATE wherein the contrast between dark and light portions of a picture is automatically controlled. Usual relief procedure is followed up to and including the etching of the plate. At this stage, the plate consists of a metal which is still covered in the unetched portions with a resist "enamel" which is the remains of the originally photosensitive film. The halftone plate is then placed in an electrolytic bath for from 3 seconds to 2 minutes. Plating metal deposits to a greater extent upon the darker or shadowy portions of plate and to the least extent upon the most exposed areas, apparently because current density is heaviest in proportion to area where the amount of exposed metal is least, i.e., the "enamel" in shadowy areas acts to direct current toward relatively small amount of exposed metal. When plate is immersed in etching acid, the highlight areas having the least "enamel" are first to be acted upon, and acid begins its action at edges of dots or lines and works downwardly and toward the center of such dots, forming them into pyramidal shapes. Invented by John J. Murray, Arlington, Mass. Unassigned. Original application May 27, 1940. Divided and this application August 10, 1942. 1 claim.

2,397,616. PHOTOGRAVURE PRINTING PLATE having a colloidal intaglio printing surface which is less subject to the objections of previous plates and has proved more satisfactory in actual use. Printing plates employing the present invention have been used in fast presses and haveproduced as many as 75,000 satisfactory impressions. The plate includes a base of sheet material, preferably a non-stretchable paper treated with some resinous material to make it impervious and having thereon two coatings, the one next to the base being of hydrophilic protein material, such as casein, albumin, gelatin, or mixtures of these, and the outer one being of soluble polyvinyl alcohol. The plate is capable of being sensitized and can then be put into condition for printing. Invented by William G. Mullen, Danvers, Mass. Assigned to Lithomat Corp., Boston, Mass. Application June 22, 1942. 1 claim.

2,398,056. PHOTOGRAPHIC STRIPPING MATERIAL in which one portion may be stripped from another portion before or after the formation of a photographic image in the sensitive layer of the material. The present invention relates to dry stripping, i.e., before wetting. The stripping film consists of a temporary paper support, a stripping layer of hydrolyzed cellulose acetate having an acetyl content of 16% to 18%, a sensitive emulsion layer, a white pigmented layer containing zinc oxide or similar substances, and a thermoplastic resin. Invented by Cyril J. Staud, Rochester, N. Y. Assigned to Eastman Kodak Co., Rochester, N. Y. Application June 15, 1943. 3 claims.

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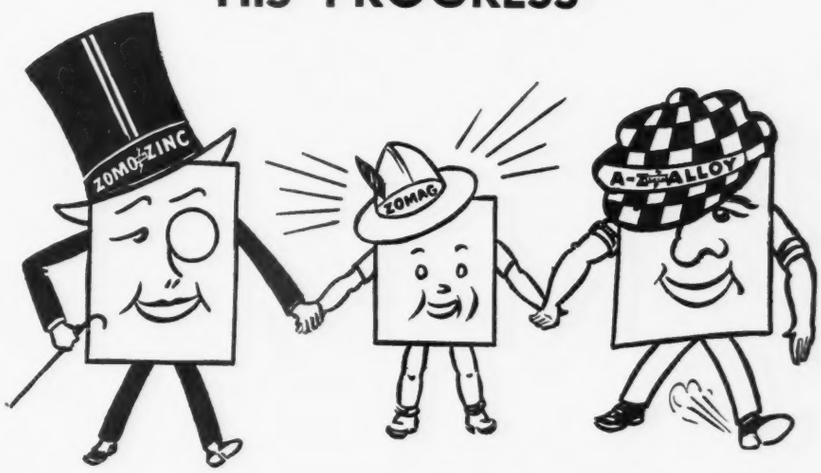
# "NATURALLY, WE'RE PROUD OF HIS PROGRESS"




YOUNG ZOMAG *(Dowmetal)* is certainly making great progress say his backers – the makers of ZOMO ELECTRIC ZINC and A-Z ALLOY.

Although light in weight, he's proving to be a bear for wear. And, he saves tons of lifting on deep etch 11-point jobs. ZOMAG *(Dowmetal)* requires no new equipment . . . all engraving procedures are substantially the same as for zinc.

Sure he's young, but he's a comer. You can order ZOMAG *(Dowmetal)* today through any distributor of ZOMO ELECTRIC ZINC or A-Z ALLOY.

## HIS RECORD TO DATE SHOWS

1 **LIGHT WEIGHT.** 1/5 as heavy as copper. 1/4 as heavy as zinc. Big 24 x 36 inch, 11 point sheets easily handled.

2 **RUGGED WEAR.** Zomag *(Dowmetal)* made 2200 mats without a sign of wear. Stands up better than either copper or zinc.

3 **SMOOTH, CLEAN ETCHING.** Zomag etches deep, with no "dirty bottom," using 1/2 strength nitric acid solution, at normal etching speed.

4 **SAVES 50% ACID.** Tests show nitric acid dissolves twice as much Zomag as zinc.

5 **PERFECT REGISTER FOR COLOR WORK.** No stretching or changes in Zomag plate sizes even after using glue top.

ZOMO ELECTRIC ZINC ◆ A-Z ELECTRIC ALLOY

## Printing Inks and Related Chemicals:

2,397,018. NONRESINOUS PHENOL - FORMALDEHYDE CONDENSATION PRODUCTS generally adapted for application in the form of films carrying coloring pigments, as for example in printing inks and coating compositions. Drying may be effected rapidly by heating the printed or coated material. Products are also adapted for use as adhesives. Production is by the reaction of a phenolic compound from the class consisting of mono-hydroxy benzene and its carbon alkylated products with formaldehyde. Liquid product is free from formaldehyde and has a viscosity between 200 and 20,000 centipoises at 30° C., having an index of refraction higher than that of the phenolic compound by 0.02 to 0.05 unit and having a density greater than that of the phenolic compound by 0.0 to 0.20 unit. Invented by John W. Kroeger and Harry F. O'Connor, Philadelphia, Pa. Assigned to Fred'k H. Levey Co., Inc., New York, N. Y. Application November 18, 1941. 2 claims.

2,397,019. PRINTING INK, the vehicle of which consists essentially of a non-resinous, thermo-setting liquid condensate of a phenolic compound from the class consisting of monohydroxy benzene and its carbon alkylated products with formaldehyde. The liquid vehicle maintains its liquidity and chemical composition on standing at normal temperatures, but resinifies into a solid resin when heated to elevated temperatures. Fatty acids are used to neutralize the condensation product. Invented by John W. Kroeger and Harry F. O'Connor, Philadelphia, Pa. Assigned to Fred'k H. Levey Co., Inc., New York, N. Y. Application December 1, 1941. 10 claims.

2,397,240. ESTER RESIN COMPOSITION which may be used in printing inks. The resin is composed of the reaction product of a cyclopentadiene adduct of maleic anhydride with a polyhydric alcohol and a reactant selected from the group consisting of fatty acids of drying and semi-drying oils, their monoglycerides and their oxidized triglycerides. Invented by William H. Butler, Bloomfield, N. J. Assigned to Bakelite Corp., New York, N. Y. Application August 3, 1940. 7 claims.

2,397,602. ESTERS AND POLYMERS which are non-polar, surface-acting agents prepared by reacting a hydroxy-substituted 1,3-dioxolane with the ester of an organic acid in the presence of an alcoholysis catalyst. The products are usable in the de-inking of paper stock; in the preparation and use of pastes in printing; as spreading agents for dyes; in the Vigoreaux printing process; as ingredients of printing ink for offset printing; in lacquer printing compositions; as dispersing assistants for pigments and printing inks; and as dispersants for photo-engravers solution. Invented by William Franklin Gresham, Wilmington, Del. Assigned to E. I. du Pont de Nemours & Co., Wilmington, Del. Application November 22, 1941. 5 claims.

## Printing Presses and Equipment:

2,396,946. APPARATUS FOR APPLYING THERMOPLASTIC MATERIAL TO SHEETS OR WEBS, using an intaglio printing couple, for the continuous overall coating of hubs or sheets of paper, cloth, and the like with a uniformly thick film of material which is solid or set at normal room temperatures. Thermoplastic material having a relatively sharp melting point above 100° C. is applied in heated liquid condition to the surface of treated, travelling sheet material in relatively closely-spaced uniform quantities. The integrated film is fixed on the surface by application of a high velocity blast of heated gas. Invented by William F. Grupe, Lyndhurst, N. J. Assigned to Interchemical Corp., New York, N. Y., by mesne assignments. Application August 18, 1939. 8 claims.

2,397,053. HIGH-SPEED MULTI-COLOR OFFSET PRESS said to insure registry of the different imprints and to prevent undesired mixing of the inks or discoloration of dampening water. A number of impression sections and a paper receiving section are on a single cylinder. A different offset roll is provided for transferring ink from each impression section of the cylinder to the sheet of paper. A feature is that separate inking sets and separate dampening sets, where appropriate, are used for each impression section of the cylinder. The feed mechanism has sheet-gripping elements which oscillate in an arc intersecting the circumference of the main cylinder, which are synchronized with movement of the cylinder periphery, and the sheet delivery mechanism removes a sheet from the main cylinder in approximately a horizontal plane through the axis of the cylinder. The sheet delivery mechanism is adapted to deliver sheets from the cylinder of one press to the cylinder of a similar press so that one such press may work directly into another. Invented by David W. Schneider, Chicago, Ill. Unassigned. Application August 27, 1941. 21 claims.

For Patent Research in the U. S. Patent Office, or a prompt estimate on any type of search, address INVENTION, INC., Munsey Bldg., Washington, D. C.

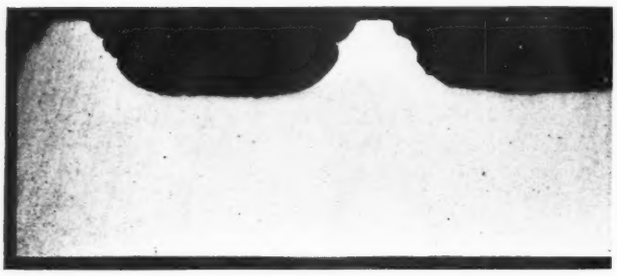



Fig. 7.—Cross-section of Zomag line cut enlarged 25X.

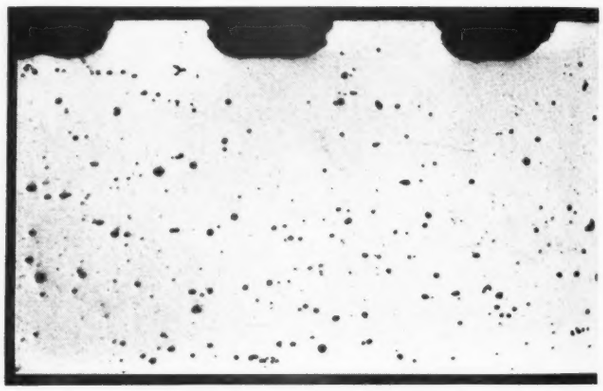


Fig. 8.—Cross-section of Zomag halftone enlarged 50X.

# TESTS

(Continued from Page 44)

molding test than from direct printing where millions of impressions on a good press with either Zomag or copper plates are necessary to produce the same amount of wear as can be produced in molding say 2000 mats.

Therefore, following methods established for this type of testing some years ago, two patterns as illustrated from the original test specimens in Fig. 1 were produced on four different types of engravers' plates:

(1) Engravers' zinc.
(2) A-Z Alloy.
(3) Zomag (Dowmetal).
(4) Engravers' copper.

Four sets of these two specimens were engraved under as closely controlled similar conditions as possible on the four metals. This produced in effect a series of similar line cuts and halftone engravings. All of these plates were then mounted on a standard type of roller mat molding machine and successive mats were produced under normal commercial conditions. After 580 mats were made, one pair of line and halftone specimens was removed for each of the different types of metal. A second set was removed after 1130 mats had been pulled, a third after 1680 mats, and the fourth and last set after 2230.

All of these specimens were then carefully sawed across to reveal the dot and line structure of the several metals under this continuous wear. The engravers' zinc plate showed noticeable wear after the 1130th mat had been pulled. The three other types of metal specimens showed no marked wear until the final sets were taken off after 2230 mats. The accompanying micro-photo show cross-sections taken from all four metals after the 2230 mats had been pulled. In Fig. 2 is shown the surface of the regular zinc line cut. In Fig. 3 is shown a less pronounced wear in the A-Z Alloy line cut. In Fig. 4 is shown considerable wear in halftone specimens made on A-Z Alloy. Fig. 5 is made from the fine line cut on copper which in the case of both zinc and A-Z Alloy showed so much wear that it was difficult to obtain satisfactory pictures. Similarly, Fig. 6 (the copper halftone) shows very little wear. Fig. 7 shows the best shoulders and has the least wear of any of the specimens which indicates the ruggedness of the fine line cut on Zomag. Similarly, Fig. 8 (the Zomag halftone) shows no visible wear.

A study of these cross cut-sections under the microscope made it apparent that this test run had not been sufficient to damage the fine lines of the copper and Zomag.

Brass was not brought into this test because it was conceded from previous similar tests that it would outwear copper or Zomag and it would have required a continuation of the mat run for probably several more thousands to demonstrate this difference.

An 11 pt. sheet of Zomag, 24 in by 36 in., weighs about 8.3 lbs.

Zomag heats up faster to burning-in temperature when burning-in the etching powder. For equal volumes of zinc and Zomag, the latter requires about 38% less heat to reach any given temperature and absorbs heat about 50% faster.

*New!*

**CHANNEL ENTRANCE BRUSH**

**Z-46**

*(Specify model of machine)*

**$1.25 and $1.50**

**Spring Handles for long channel entrances.**

Over a period of many years, machinists have been asking us for a brush to clean channel entrances. They know that there is little use cleaning matrices and magazines if the channel entrances remain gummy.

Here at last is a brush that will do the trick. A gentle rubbing of the brass bristle of this specially designed brush over the bottom of the channels will clean and polish the sliding surfaces and keep them to a shiny finish.

There are three models to take care of the various lengths of channel entrances.

**ACE BELTS**
**never wear out their first welcome**

PRECISION TRADE ★ MARK

**LINOTYPE PARTS COMPANY**

*Factory and Main Office:*
WEATHERLY, PA.
*Branch Office:* 314 WEST 10th STREET, KANSAS CITY 6, MO.
CHICAGO • MINNEAPOLIS • DENVER



***IT'S OUR NECK THAT'S OUT!***

As long as it is **OUR** neck that sticks out, you needn't worry when we say "as soon as the first pound of Imperial type metal enters your plant, Imperial takes the unconditional responsibility for that metals' performance".

Our 23 years of experience with Imperials' Plus Plan makes this offer possible—we are sure the metal will do its job! Under the Plus Plan, your metal is analyzed at regular intervals, the results recorded and a tailor-made dross replacement metal is furnished. This replacement is "just right" for your working metal supply, insuring proper metal performance and control.

Let us stick our neck out in your plant! Write for full information—right now is a good time!

**IMPERIAL TYPE METAL CO.**

*Serving the Graphic Arts Industry Only*

**Philadelphia 34 New York 7 Chicago 50**

**Imperial**

# Why Put In Offset?

By ARTHUR A, WETZEL*

**President, Wetzel Bros., Milwaukee, Wis. Abstract of illustrated address delivered before New England Conference for the Graphic Arts, Boston, April 1946.*

THE offset process certainly has passed any preliminary experimentation, and is considered one of the recognized processes in the industry. In fact, at times it becomes difficult to tell whether the job has been produced by the offset process or by letterpress. The addition of this process and the additional equipment will naturally spread the overhead costs of the printer over more units, and, therefore, put him on a better competitive basis when the time again comes to knuckle down in a competitive market. This, of course, will put him in a better competitive position in letterpress as well as offset.

If the printer has the offset process in addition to letterpress, it will naturally aid him in selling his present customers *more*. It will enable him to produce work that was formerly produced by his competitor who had the offset process.

It will open new markets with new customers which will not only result in offset business from those sources, but additional letterpress as well.

"*What about the comparative costs of offset work versus letterpress?*" Actually, only the cost accountants can really determine the costs, and the estimators make the comparisons. But to give some idea of comparisons on approximately the same size press, I am going to show some actual factory costs as we have built them up. These are factory costs rather than selling costs because the various percentages have to be added on factory costs, and they vary considerably from plant to plant.

The first is the breakdown on two Miehle No. 41 presses—because that is the economical way to run that equipment—with a pressman and an assistant. Projecting the probable percentage of productive time at 75 per cent, the factory cost comes out to $3.77 per hour.

The Harris LSQ, size 26 x 40, is the logical comparable size to the Miehle No. 41. Here the manning requirement is one pressman and one assistant on the press. The projected percentage of productive time is 75 per cent, and the factory cost is $6.08 per hour. We haven't, of course, taken into consideration the number of sheets per hour produced on each piece of equipment. It is sufficient to say that the offset press will deliver almost twice the number of sheets to the delivery end of the press per hour as the letterpress of the same size.

Of course, to the above factory costs must be added the respective percentages, for any given plant, for stock, storage and handling, delivery and shipping, administrative expenses, selling expenses, and profit.

"*Can the job be produced more economically by offset than by letterpress?*" I have found, by bitter experience, that it is poor judgment to try to answer that question without the careful preparation of estimates of both processes offset and letterpress. It surprises you both ways at times, because of the various factors of the cost of stock and plates that enter into the cost of the job. But after these comparisons have been made, it is far better to submit these comparisons to the customer—giving him a choice—and setting up your own competition, instead of having him call in a competitor for the cost of the other process.

### EDITOR'S NOTE:

*The Wetzel plant in Milwaukee was started as a letterpress printing plant. The offset process was added at a later date, thus making it a combination commercial printing plant. We regret it is not possible to publish Mr. Wetzel's address in its entirety.*


to make a Beautiful Impression

use BURGESS CHROME MATS

When you use Burgess Chrome mats you can be sure of clean-cut "beautiful impressions" in all your half-tone and line reproductions. There are no fuzzy edges, no blurred lines. All the detail of the original is faithfully reproduced with these fine mats.

Try Burgess Chrome mats —you will find them definitely superior!

BURGESS CELLULOSE COMPANY
Manufacturers and Distributors of Burgess Chrome and Tone-Tex Mats
FREEPORT • ILLINOIS
Pacific Coast Representative
RALPH LEBER CO., 426 Polson Bldg., SEATTLE, WASH.

A Laboratory Product BURGESS Chrome MATS

# Leading Stereotypers Choose
## "COME-BACK" and "STAY-BACK"

STEREOTYPERS who have the "Know-How" use Eastern Tru-Mold Cork Molding Blankets because of their superior "come-back" qualities. These same properties make for sharp, clean impressions even after severe usage. They have greater flexibility that keeps edge cracking to a minimum. Made with just the right amount of Bakelite to insure perfect density. Only tru-Molds have these properties.

Tru-Molds can be had in either "Medium," "Medium-Hard" or "Hard" density in the following sizes.

| Sizes | 1/4" Each | 5/16" Each | 3/8" Each | 3/16" Each |
|---|---|---|---|---|
| 20" x 24" | $2.50 | $3.75 | $4.50 | ..... |
| 21" x 25" | 2.75 | 4.00 | 4.75 | $2.50 |
| 22" x 26" | 3.00 | 4.25 | 5.00 | ..... |

(One size only on 3/16"—21" x 25")

*Send in your order now*

LEADING stereotypers use "Flecto" Gummed Backing Felt to secure maximum "stay-back" resulting in clean-cut plates. "Flecto" sticks flat to the mat regardless of heat used in scorching. It is free from cracking, slipping or crystallizing. Order it in sheets or strips. Either way it cuts or tears easily, cleanly and without ragged edges. Accurately gauged, uniform throughout, soft, pliable; will not peel or separate in layers; conforms to and shrinks with the mat.

Place your order today in either sheets or strips for the following sizes.

**GAUGES AND SIZES**

Gauges .021, .025, .030 (Green) sheeted 18" x 24".

Gauge .035 (Red) sheeted 18" x 24".

Gauges .040, .045 (Green) sheeted 18" x 22".

Gauges .050, .060 (Gray) sheeted 18" x 22".

Cut into strips 9" or 18" long and 1/8" to 1" wide at no extra charge.

## EASTERN NEWSPAPER SUPPLY

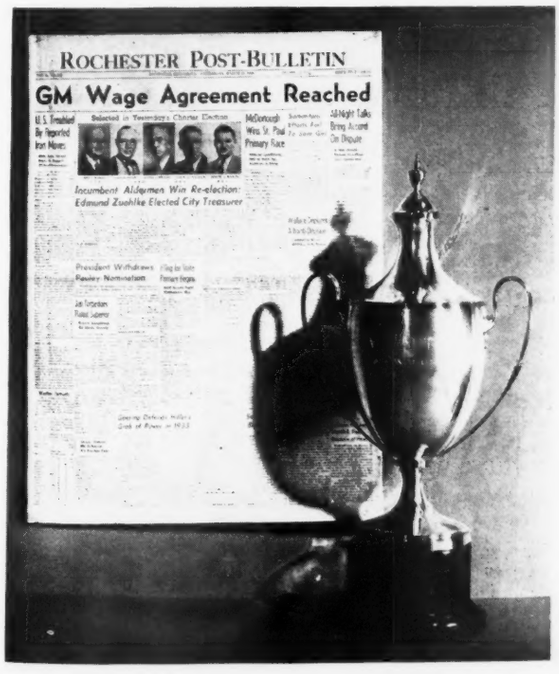
**9603 NORTHERN BOULEVARD** **CORONA, L. I., NEW YORK**


## 1946 Ayer Award Winners

THE Rochester (Minn.) *Post-Bulletin* has been awarded the F. Wayland Ayer Cup, highest recognition in the 16th Annual Exhibition of Newspaper Typography conducted by N. W. Ayer & Son, Inc. The paper was selected from more than 1200 entries in the Exhibition, which was open to all English-language dailies in the United States. The award was made on the basis of excellence of typography, makeup and presswork.

In addition to the Ayer Cup Award, Honorable Mentions were awarded to papers in the following circulation and format groups: Standard-size papers of more than 50,000 circulation: First Honorable Mention, The *Courier-Journal*, Louisville, Ky.; Second Honorable Mention, Richmond *Times Dispatch*, Richmond, Va.; Third Honorable Mention, *The Christian Science Monitor*, Boston, Mass.

Standard-size papers of from 10,000 to 50,000 circulation: First Honorable Mention, Durham (N.C.) *Morning Herald*; Second Honorable Mention, Read-


ROCHESTER POST-BULLETIN

GM Wage Agreement Reached

Incumbent Aldermen Win Re-election: Edmund Zuehlke Elected City Treasurer

Page one of Rochester (Minn.) *Post-Bulletin* for March 13, winner of the F. Wayland Ayer Cup, also shown, in the 16th Annual Exhibition of Newspaper Typography, held in Philadelphia April 17, under the auspicies of N. W. Ayer & Son, Inc.

The Gazette and Daily

The York (Pa.) *Gazette & Daily*, winner of the Certificate for Tabloids, regardless of circulation, in the 16th Annual Exhibition of Newspaper Typography held in Philadelphia, April 17, under the auspicies of N. W. Ayer & Son, Inc.

ing (Pa.) *Eagle*; Third Honorable Mention, Rutland (Vt.) *Herald*.

Standard-size papers of less than 10,000 circulation: First Honorable Mention, Owensboro (Ky.) *Inquirer*; Second Honorable Mention, The Antigo (Wis.) *Daily Journal*; Third Honorable Mention, Santa Fe *New Mexican*.

Tabloids, regardless of circulation: The Gazette and Daily, York, Pa.

Judges of the Exhibition were Lowell Thomas, radio commentator; Harold Van Doren, industrial designer, and Laurance B. Siegfried, professor of Graphic Arts and Head of Printing, at Carnegie Institute of Technology.

## Department or Commerce Needs Your Assistance

READERS of *Printing Equipment Engineer* can be of great help to Office of the Publication Board, Department of Commerce, Washington 25, D.C. This is how: The Office of the Publication Board and the War Department are about to begin a complex and difficult operation. This consists of the selection and the microfilming in Germany of data that may be valuable to American science and industry. It will be understood that it is impossible for any government agency to determine what items in the enormous mass of material may be of value to some American business or research group. Therefore, the Department is asking the advice of American industry and science.

This combing of German technical documents is the second phase of work begun by the Technical Industrial Intelligence Committees. TIIC coordinated the work of teams of experts drawn from industry who made surveys of each industrial field in Germany immediately after the fighting ceased. These experts, loaned by industry for a few weeks or months, were usually unable to make a detailed study of the documents uncovered by their investigations.

There are many tons of these documents. To review them will require months of work by qualified technicians. TIIC investigators found many new formulas, products and processes which American industry is already beginning to use.

Like the TIIC reports, copies of German documents deemed to be of value will be made available to the public through the Office of the Publication Board at the cost of reproduction.

In order to determine the nature and extent of the work which will be carried on, the Department of Commerce wants information as follows: (1) What does industry want? (2) The Department needs industry's help in recruiting personnel, and (3) Special missions can still be arranged.

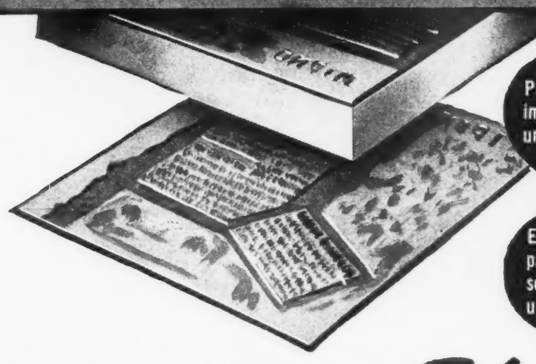
The Department wants industries and scientific groups to suggest specific information that should be sought. It would be helpful to have suggestions as to where valuable documents can be found, and what industries in Germany might possess information not now available. Qualified technicians are needed to carry on the work of searching the German files. Routine work will be done by German civilians. Appointments are subject to Civil Service approval and are made for a minimum of six months. Any industry or scientific group interested in specific German industrial methods and able to assign personnel to visit Germany should get in touch with the Department at the address given above.

### Mallon Purchases Plant

The Metropolitan Life Insurance Co. announces the sale of its printing plant and building on Court House Sq, Long Island City, N. Y., to Peter F. Mallon, Inc. Mallon, Inc. has in turn sold the building subject to a lease to it covering that portion occupied by the printing plant. The plant will be operated by Mallon, Inc. as a commercial printing plant under the direction of Peter F. Mallon, president, and will give special attention to Metropolitan's printing requirements.

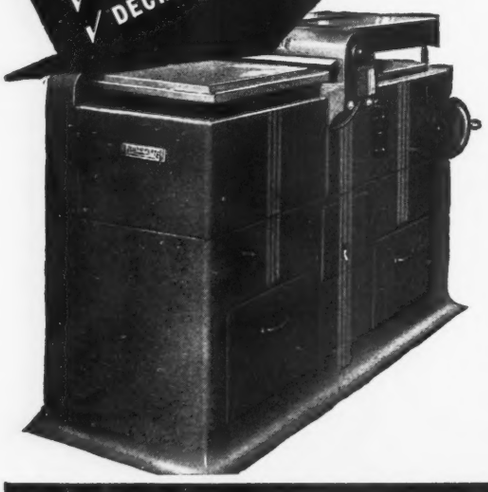

PROFITS FOR THE PRINTER WITH GOOD EQUIPMENT

CHECK THESE BENEFITS!
✓ SPEEDS UP SERVICE
✓ IMPROVES PRINTING
✓ CUTS MAKE-READY
✓ DECREASES PLATE WEAR



Printers, publishers save time, improve printing quality with uniform type-high plates.

Engravers, electrotypers, newspapers speed up and improve service with plates of desired uniform thickness.



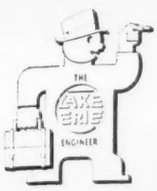
Plane-O-Plate *Shavers*

Rapid, accurate shaving of flat work to uniform printing levels makes Plane-O-Plate *profitable* to printing craftsmen. Tomorrow these moderately-priced, dependable shavers will be even better with new Monomelt-built features . . . These new features mean added profits and better printing. They make plates last longer, reduce wear on press blankets and help you "get rolling" *sooner* on every job.

**Shaves Bed of Plates in 30 Seconds!** Plane-O-Plate handles up to full newspaper page, shaves complete cast or bed of multi-sized plates in 30 seconds. It is ideal for all flat work from "zinc" to above "type high."

*Write for details today!*

MONOMELT COMPANY
1611 POLK STREET NORTHEAST
MINNEAPOLIS 13, MINNESOTA




**Faster, sharper dry mat molding . . . . perfect color mat register with**

# DIRECTOMAT

**MORE AND MORE** leading dailies are turning to the Directomat for sharper, faster dry mat molding...*and* perfect color mat register. Here are a few of the reasons...

- Directomat molding produces sharper mats...cleaner casts...makes possible the higher quality reproduction being demanded by advertisers and agencies.
- The Directomat eliminates stretch of mats...reduces chance of mat buckle...can produce dry mats with the same shrinkage you now get.
- The Directomat equipped for double-sided operation has the capacity of two mat rollers...requires the space of only one.
- With the Directomat all color work and fine halftone work can be molded and completely dried...without shrinkage...in a single operation.

Nearly one hundred Directomats are already bringing these and other advantages to newspaper and commercial plants throughout the United States and Canada. If you are interested in improving reproduction today...providing for R.O.P. color work tomorrow ...write to Lake Erie for complete facts on the Directomat.

LAKE ERIE ENGINEERING CORP.
568 Woodward Avenue Buffalo 17, New York

**LAKE ERIE**
**ENGINEERING CORP.**
**BUFFALO, N.Y. U.S.A.**

● Leading manufacturer of hydraulic presses . . all sizes and types . . stereotyping . . plastic molding . . processing . . rubber vulcanizing . . metal working . . special purpose.

Booth's Zink Cut Cement prices in the United States: 75c per tube; $6.00 per dozen tubes; $5.00 per dozen tubes in gross lots.

# *Eliminate Little Worries*

So you can concentrate on the larger ones. A composing room executive's problems are numerous enough without having to contend with unnecessary worries.

One needless worry is that of improperly placed cuts in display advertising and editorial composition. Use of ***Booth's Zink Cut Cement*** will insure that all cuts are placed in proper position according to layout. This cement fastens any kind of cut to wood or metal base.

★

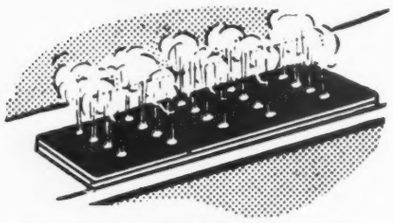
***Booth's Black Rubber Rolls*** for line-composing machine keyboards provide maximum resiliency for cam tread. They are also of the same diameter throughout their length when applied properly to the roll shaft. Price $1.45 per pair; $7.75 per dozen.

# E. A. BOOTH
## RUBBER COMPANY

**MAHONING BANK BLDG., YOUNGSTOWN, OHIO**

**STEREOTYPE PERFORATED GUMMED PACKING FELT**

**Important where considerable shrinkage is employed**



Manufactured under Patent No. 1,967,444

**Is More Flexible • Forms with the Mat • Dries Faster • Sets Instantly**

Send for a Trial Order Today — Sheets or Cut Strips

**American Publishers Supply**
**P. O. Box 924 Lynn, Mass.**

Hugo Lindberg, eastern manager of The Printing Machinery Co., Cincinnati, announced appointment of Arthur R. Mahoney as eastern representative. Mr. Mahoney has been identified with the industry for 30 years. The company's New York office is at 23 East Twenty-Sixth St.

## Urges Paper Dealers Protect Small Printers

COMPETITION for paper supplies, heightened by the current scarcity, makes it necessary for paper distributors to use every means to assure equitable distribution, according to James F. Newcomb, president of Printing Industry of America, Inc.

In a letter to A. H. Chamberlain, executive secretary of the National Paper Trades Association which met in Washington recently, Mr. Newcomb pointed out that in periods of scarcity the small businessman is likely to suffer most. He called upon the paper dealers to take steps to assure their regular customers a fair share of the existing supply.

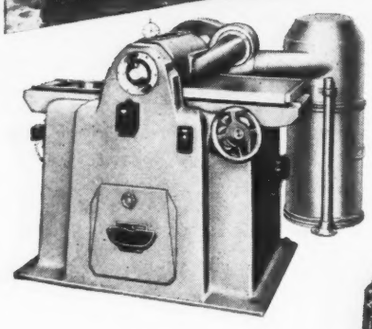
"I cannot speak for those who produce any particular kind of printing, whether publication, job printing, books or advertising material," Mr. Newcomb said, "but I think I should tell you as merchants to the trade that your bread and butter is the job printer, the man who must have a ready source of supply close at hand to meet immediate customer demands, the printer who is not large enough to place contract business many months ahead. I want to urge you in this very difficult shortage period to try to maintain as closely as possible the normal distribution to the trade. One of the real abrasive factors in the relations of large and small businessmen is that in a market such as the present one the little fellow does not have the means to protect himself. And when in the face of greater demands on the existing supply the big fellow gets a disproportionate amount of the supply, the irritation is extreme and it leads to the attitude of 'there ought to be a law.' "

Members of PIA have generally reported that dealers are extremely cooperative with established accounts in filling needs up to the limit of their supplies, Mr. Newcomb said. He stated: "In fairness to all concerned, we believe that until supply more nearly approximates demand, we ought to continue as intelligent businessmen to see that no one is damaged. The interests of our industry and of yours are identical in this respect."

### SKF Wins Award

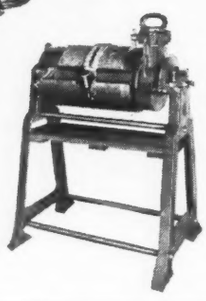
SKF Industries, Inc. has been awarded a certificate by the Associated Business Papers for the outstanding effectiveness of its recent advertising campaign "SKF Puts The Right Bearing In The Right Place," a twelve-ad series prepared by Geare-Marston, Inc., Philadelphia and New York.

Seven hundred fifty ad campaigns were judged in the contest in which forty awards recently were made at a joint New York luncheon of the ABP and the Industrial Advertisers Association of New York. SKF's campaign won its award in the Fabricating Parts and Materials Division.



**THE NEW ROTARY SHAVER**

with less moving parts, for simplicity, accuracy, durability and safe operation. Controlled heights guaranteed within .001". For better printing plates, send for free illustrated folder.



**THE NEW PLATE REGISTERING MACHINE**

that registers plates swiftly, accurately, safely for little money. Send for free illustrated folder.

# 5 Simple Operations

**that conspicuously reduce 4 to 6 color printing costs.**

1. To make ready, unlock the ink carriage, turn hand wheel, step in, register plates, adjust ink roller or raise tympan sheet.
2. Lightning speed on all four color printing—625 to more than a thousand feet a minute, guaranteeing 100% hairline register.
3. Press button speed control. Full view ink fountains, with micrometer control, adjusted while the press is in motion.
4. Perfect hydraulic automatic rewind or sheet delivery.
5. Long, steady runs on glassine paper or stock up to 240 pound basis at unbelievably low maintenance costs.

*SEND FOR FREE ILLUSTRATED BOOKLET*

# HESS & BARKER

***Printing Press & Equipment Manufacturers***

**212-22 S. Darien St., Philadelphia 7, Pa.**

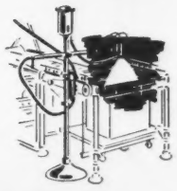
Telephone: Pennypacker 4070

# Stop TURNING OUT MESSY PRINTING JOBS!

## USE

### W-R SPRAYER GUN WAX

- Can be used on all colors successively. No sandpaper effect.
- Harmless to press and operators. Safe to use on food labels and wrappers.
- Makes a fine, light spray or mist that is almost invisible.
- Absolutely colorless. Will not affect the most delicate tints or colors.



### W-R PROCESS COLOR WAX

- Mixes with any lithograph, offset or letter-press inks—colors or black.
- Assures perfect lifting and blending of colors. Simplifies printing of solids.
- Prevents offsetting, mottling, picking and sticking. Keeps inks from crystalizing.
- Indispensable for transparent colors and process work.

W-R SPRAYER GUN WAX AND W-R PROCESS COLOR WAX have been standard with printers everywhere *for nearly half a century.* Packed as follows:

| W-R SPRAYER GUN WAX: | W-R PROCESS COLOR WAX: |
|---|---|
| 1 gallon cans | 1 pound cans |
| 5 gallon cans | 5 pound cans |
| 55 gallon drums | 25 pound cans |

*See your dealer or write for trial shipment today!*

**WAX REFINING COMPANY**
633 PLYMOUTH COURT, CHICAGO 5, ILLINOIS

# BEVERIDGE DRY MATS *are Dependable*

SAMPLES TO YOUR SPECIFICATIONS GLADLY SENT GRATIS UPON REQUEST

*New Products Division*
THE BEVERIDGE PAPER COMPANY
INDIANAPOLIS 4, INDIANA

*60 YEARS OF PAPER MAKING SKILL*

## A. L. CUSHMAN, *Pioneer*

On November 2, 1893, the first Cushman Typesetting Machine Motor was installed in the plant of "The Daily People and Patriot" (now the "Monitor-Patriot") of Concord, New Hampshire.

It was, incidentally, the second motor ever made in the United States for any purpose, designed to use three phase current.

Here is an excerpt from the "Patriot's" account of this important event:

> "All motors of this class look wonderfully simple in their mechanism, and it is truly astonishing to those who have seen the old system (single phase) in which rheostat, commutator, and brushes play a most important part, what an enormous power is developed by them."

*Cushman Motor Division*

LINOTYPE PARTS COMPANY
WEATHERLY, PENNA.

### Disposes of Stitcher Business

Harris-Seybold Company has announced through Chairman R. V. Mitchell, that the company disposed of all of the Morrison wire stitcher business to the Acme Steel Company of Chicago. Mr. Mitchell explained that the Harris-Seybold Company has experienced the greatest demand for Harris offset lithographic presses and Seybold paper cutters in the history of its business. Disposal of the Morrison stitcher line will permit the Seybold Division to concentrate all its facilities on the manufacture of cutters, presses, and paper drills.

Harris-Seybold will continue to manufacture wire stitching machines and parts until April 30, and will continue to service Morrison equipment until arrangements have been completed for Acme Steel to absorb the Morrison service system.

## SHRINKITIS

(Continued from Page 25)

"If any of us have in mind trying to do a good job of three color and black printing with makeshift equipment, then I think it is better we forget it, at least for awhile.

"I don't want to appear opposed to printing three colors and black in regular sections. Neither do I want to be considered critical of those who are going to install the necessary equipment and go after the business. I admire the men who are not afraid to try something that is a departure from mine-run operation.

"First, there is the investment in equipment in the stereotype department, and the pressroom. The engraving department may also need some new gadgets. Make sure you include everything you are going to need in all departments. That equipment should be paid for over a reasonable time, out of profit on the kind of color advertising the equipment produces."

#### Stereo and Pressroom Session

The Stereo and Pressroom session was in charge of Geo. C. Stevens, Mechanical Superintendent of the Wilkes-Barre Newspapers, and William J. Thomas of the Scranton *Times*.

Joseph Goggin, of the Goss Printing Press Co., while speaking generally with respect to newspaper printing equipment, gave a summary of the outstanding improvements which have been effected. He said that manufacturers of stereotyping and press machinery keep pace with the demand for better equipment for newspaper printing. Manufacturers recognized the need for eliminating tolerances a long time ago and have accomplished reduction in wear and vibration and have provided for lower maintenance and production costs.

He asserted that vertical direction of stereotype molding pressure is now assured with matrix rollers without the requirement of synchronizing forces of pressure above and below the mat. Provisions have also been made for accurately gauging the molding pressures used. In addition to vacuum pull in casting boxes to insure surface level of the plate, the face of the plate can now be cooled rapidly to insure smooth printing surface.

Casting boxes are provided with heating elements in addition to water cooling provisions. Included is an arrangement for pre-heating tap water to maintain a very close temperature range of the casting equipment. This makes possible elimination of the dimensional differences of plates due to the contraction and expansion of the plate casting box itself.

"Motor-driven metal pumps," continued Mr. Goggin, for all types of casting equipment, special spouts arranged for pre-evacuating the air inside the box, automatic timing devices, and so on, are designed and can be obtained optionally as special equipment. Fully enclosed routing equipment with vertical high-speed motors for direct drive of the router bit are available. Plate finishing machinery has been redesigned. Special attention has been given to finishing machinery for producing precision stereotype color plates."

The speaker discussed newspaper press improvement, including the tension plate lockup by means of which the plate is held on the cylinder under constant pulling tension. Other press improvements (some new and some not so new)

USE THIS JUSTRITE SAFETY-APPROVED CAN FOR

**FLAMMABLE LIQUIDS**

Don't run risks in handling or storing flammable liquids. Use this Justrite Safety Gasoline Can—it's approved for safety by Associated Factory Mutual Fire Insurance Companies and Underwriters' Laboratories, Inc. And it keeps your insurance costs to a minimum!

*Safety Gasoline Can*

Justrite Safety Cans are made of heavily coated 24-gauge steel, double seamed and soldered. High-gloss, baked-on red enamel finish. Non-spill pouring lip. Sizes from 1 pt. to 5 gal.

*See your supplier—today!*

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2063 N. Southport Ave., Dept. J-2, Chicago 14, Illinois

SYNTRON
"VIBRATING"
**PAPER JOGGERS**

**Provide the Easy, Economical Way to Handle Paper**

Onionskin to heavy board, carbon snap-outs, etc. Use them at the cutter, or at the press. They'll save you money, time and labor.

Write to—
**SYNTRON CO.,** 577 Lexington, Homer City, Pa.

## ARE *YOU* USING SPEED KING BLACKS?

After trying out our recently-announced new products—Speed King Blacks—printers all over the country report them to be everything we claim: Speed King Blacks *do* save time and money, and they *do* produce clear, sharp halftones and excellent solids... You, too, can profit by using Speed King Blacks. We have prepared a folder giving complete information. Send for your free copy now.

CHARLES ENEU Johnson AND COMPANY

GOOD INKS SINCE 1804

10th and Lombard Streets, Philadelphia, Pa.

New York • Chicago • Boston • St. Louis • Cleveland • Detroit
Baltimore • Kansas City • Pittsburgh • Atlanta • Dallas



## LASTING IMPRESSIONS

because...

*WOOD DRY MATS possess perfect balance, assuring Solid Blacks, Faithful Middletones, and Sharp, Clean Highlights.*

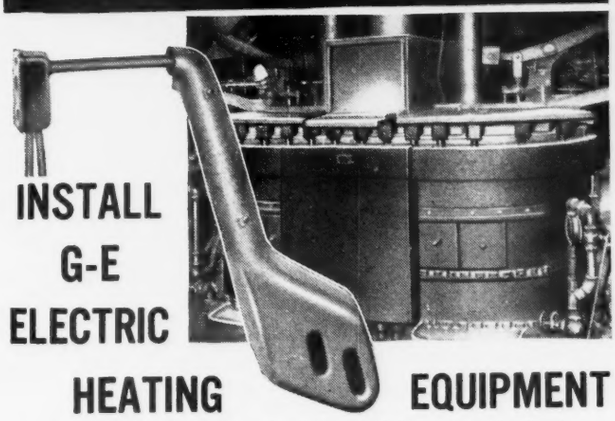
WOOD DRY MATS

WOOD FLONG CORPORATION
HOOSICK FALLS, N. Y.
NEW YORK CITY OFFICE:
551 FIFTH AVENUE, NEW YORK 17, N. Y.



IT'S EASY TO GET

## FAST, UNIFORM CASTING



INSTALL G-E ELECTRIC HEATING EQUIPMENT

WHEN used in conjunction with any standard stereotype-metal furnace, G-E electric heating equipment will automatically provide the close temperature control so necessary for fast, uniform casting. Rejects are fewer, labor and attendance are reduced, and maintenance expense is cut to the bone.

For details, ask the G-E heating specialist in your locality. Or, write for Bulletin GED-650. *General Electric Company, Schenectady 5, N. Y.*

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GENERAL ELECTRIC



## OHIO KNIVES

O.K. BLACKARROW PAPER TRIMMING KNIVES

give 25 to 40% longer service

Give better cutting at lower cost—proven under severe test in America's largest paper mills and printing plants. Made of a new alloy to withstand heavier cutting and still hold a keen edge for long runs. Ground with a slight concave and taper on the face for clearance—smooth cutting.

Write today for our new catalog giving complete information on O. K. BLACKARROW paper trimming knives.

The OHIO KNIFE Co.
CINCINNATI 23, OHIO, U.S.A.

consist of pre-loaded roller bearings, anti-friction bearings and spiral and helical gears; forced and gravity feed oil system and oil tight housings. Continuous feed ink system is a recent improvement. Mr. Goggin stated: "Another advanced feature is the provision for presetting ink feed, and increasing or decreasing ink feed of the individual ink columns simultaneously from one station. This is called the Colortrol Method. The control station is located waist-high outside the press frame and consists of a series of push buttons and a handwheel. The control station is located shoulder high for color cylinders above the unit permitting ink feed adjustments of the upper cylinders from the floor. The push buttons are numbered to correspond to the column of the page, and when placed in contact position, energizes the electric controls located at the fountain blade, which moves the fountain blade to or from the fountain roller by the manipulation of the handwheel. By placing all the push buttons in contact, and turning the handwheel, the page sections of the fountain blade are moved to zero and reset to a uniform ink feed position. Where increased ink feed is required, only the push buttons corresponding to the columns to be increased are placed in contact, and the handwheel is turned in the increase direction. Similarly, the ink feed is decreased by placing the push buttons in contact and turning the hand wheel in the decrease direction."

Mr. Goggin stated that improvements in press design have been made to provide greater flexibility in printing r.o.p. color. All units are adaptable for color attachments without alterations being required in the unit side frames when color units are added at a later date All cylinders and housings are designed so that reversing may be accomplished without alteration or renewal of the parts.

*The Big Question of Newsprint* was discussed by Wm. G. Dodge of the International Paper Sales Corporation. He said that increased production by pulp mills could be obtained by greater standardization of roll widths, roll diameters, color and character of finish. A larger percentage of fractional size rolls than is ordinarily consumed would be of material assistance in increasing production.

M. M. Caldwell, of Sam'l Bingham's Son Mfg. Co. stated that natural rubber printers' rollers cannot be expected in quantity for some time. It is doubtful if they will ever replace synthetic rubber in the making of rollers. There is every indication that synthetic or some successor to synthetic rubber will continue to be the primary material for making rollers.

William G. Forster of General Printing Ink Div. of Sun Chemical Corporation, discussed Hydry moisture-set ink, recently developed for newspaper printing. (See April issue of *Printing Equipment Engineer* for summary of Mr. Forster's address.)

### Composing Room Session

On Tuesday morning, Alan G. Kistler, mechanical Superintendent of the Wilkes-

### Getting Them Together Would Solve Problems*

THERE is room for greatly improving the relations between the advertiser or the advertising agency on the one hand and the manufacturing and selling organization of the newspaper on the other. The people who write the copy and make the art for the advertiser, and the people who make the cuts, set the ads and print the papers for the newspapers do not know one another well enough. In most instances, the only time those people get together is when something goes wrong . . . If I were an advertising manager of a newspaper I would sometimes take the artist at the department store and my engraver out to lunch so they might talk shop. The copy writer and the composing room foreman might know more about each other and be of more value to their concerns if they were brought together occasionally.

*From address delivered by Leon A. Link, Cleveland Plain Dealer production Manager, before PNPA Mechanical Conference, Harrisburg, Pa., April 2, 1946.


NO SLUG FANNING OR JUMPING WITH SAFE, ACCURATE C. & G. CLAMPING ARRANGEMENT

THE C. & G. SAW TRIMMER IS ALWAYS READY TO USE — NEEDS MINIMUM OF SERVICING

COMPOSITORS like the safety and dependability of the fast and accurate C.&G. No. 3 SAW TRIMMER. The safe, accurate C. & G. Clamping Arrangement makes it almost impossible for slugs to fan or jump. A sturdy, reliable piece of shop equipment that will give you trouble-free service for years.

*Detailed Specifications sent promptly upon your request.*

MILWAUKEE SAW TRIMMER CORP.

612 EAST CLYBOURN STREET, MILWAUKEE 2, WISCONSIN

More rapid action by MAN and MAT

Advertising volume swelling to pre-war levels . . . crews back to normal . . . paper supplies easier . . . all spelling bigger editions, more exacting standards, more makeovers.

There is a cheer today for the man who hustles and the mat that keeps up with the man—easy molding, quick scorching, dependable Certifieds, yielding first casts that are plenty good.

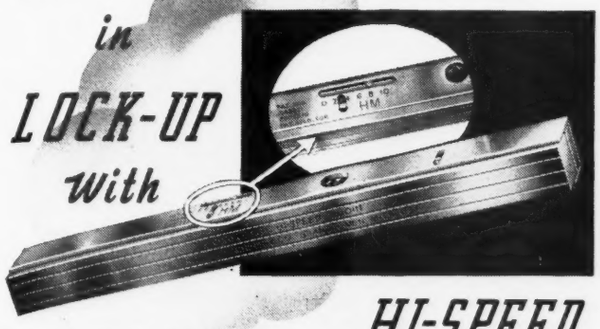
CERTIFIED DRY MAT CORPORATION

9 Rockefeller Plaza, Dept. M, New York 20, N. Y.

*For dependable stereotyping, rely on Certified Mats*

Certified DRY MATS

ACCURATE REGISTER
in
LOCK-UP
With



CHALLENGE HI-SPEED QUOINS

★ EXACT REGISTER always—no matter how many times the form is unlocked and locked. The new improved clear-view indicator makes this possible.

Two Style HM Challenge HI-SPEED QUOINS do the work of 4 to 8 ordinary quoins and save up to TWO-THIRDS of the lock-up time required for ordinary quoins. Rust-proof plated steel—self contained. Six handy sizes from 4½ to 12 inches. Write today for details and prices.

561

THE CHALLENGE MACHINERY CO.
"Over Fifty Years in the Service of the Graphic Arts"
MAIN OFFICE AND FACTORY: GRAND HAVEN, MICH.

WANTED!
FOR IMMEDIATE DELIVERY

Photo-composing machine or step and repeat machine. Minimun size press plate 14" x 24", any size and make considered. Rutherford preferred.

SEND DETAILED CASH OFFER TO: BOX No. 253
Care of: *Printing Equipment Engineer*

A.P.S. STEREOTYPE
GUMMED PACKING
CORK BLANKETS
CREEPERS
POURING SHEETS
ROUTER BITS
TAILBOARDS

ALWAYS BEST AT
AMERICAN PUBLISHERS SUPPLY
P. O. Box 924 Lynn, Mass.

Barre Newspapers presided. The first speaker was Mechanical Superintendent Edward O. Davies of the Harrisburg *Patriot* and *Evening News*, who discussed *Composing Room Problems and Abuses*. With respect to composing room abuses the speaker stated at the outset that the greater part of composing room costs are those over which the superintendent has no control. Wages and hours are fixed by management; editorial flow of copy; carrying operators for peak loads; no deadlines or deadlines not enforced in advertising copy; correction and resetting of ads, and makeovers, were among the elements listed. All of these present a real problem in trying to operate the mechanical departments efficiently. But when costs go up management invariably goes to the mechanical departments to decrease costs.

Among the problems encountered by mechanical executives he listed:

Editorial: (1) Excessive amount of copy close to edition time; (2) Copy flow not regulated properly; (3) Misguided and sometimes two or three different guides on stories; (4) Copy returned because of poor editing; (5) A great complaint is illegible copy, especially streamers and heads; (6) Scoffing at any idea of a systematic handling of copy, especially prepared copy paper showing at a glance the amount of type any number of specified typewritten lines will make; (7) News room disregard for established style, making style to fit occasion and whims, thereby causing confusion to operators, proofroom and foreman; (8) Far too many heads returned to news room that contain more units than will go in line; (9) No attempt to keep count of columns or inches of copy sent to composing room; (10) Overset—failure to cooperate with foreman or to make attempt to control this costly but widely prevalent condition; (11) Last minute changes by makeup man from newsroom, substituting one story for another after pages have been made up, thereby causing bunching of pages in stereotype room; (12) Stories coming late from newsroom of happenings the day before. This is another regular cardinal sin.

The constant and ever-waging fight for later and later editions, taking no thought for home delivery and apparently caring less. Assuming that when all copy is in composing room the work is done, instead of just starting.

The difficulty of composing room executives in getting advertising departments to enforce deadlines depends to some extent upon your competition. If competition is keen then there is the tendency to accept advertising and corrections just anytime.

Now let's see what are some of the complaints against advertising: (1) Too much illegible copy and lack of concise instructions; (2) Some copy and mats missing and layout not marked as to where or when they will be furnished; (3) Size of original cuts marked on layout not properly designated, which is discovered when cuts arrive from engraving room; (4) Advertising solicitor not being clear in his own mind what advertisers wanted when he marked corrections on proof, passing it on to layout man, believing he surely is a mindreader and will know; (5) The old story of resetting advertisements all because customer and ad-man did not know what they wanted until they saw the proof; (6) The apparent belief of advertising solicitor that what they can do in a few minutes with a pencil—bingo—you can do likewise with type; (7) Proofs and more proofs and after ten to twenty proofs are furnished send them thirty tear sheets on day publication; (8) And the apparent belief of advertising department that you will cheerfully furnish as many mats of entire advertisement as their customers desire. There absolutely should be no charge, it is service which you should be glad to render. But your costs go marching on just the same. If you happen to be in a highly competitive city and zinc cuts are likewise furnished free, you should be willing at all times to gladly roll several mats of these cuts so that your competitor shall likewise be a recipient of your generosity. (9) The matter of keying cuts after proofs have been returned from store is another headache. Despite protests this evil exists to a greater or less extent.

J. Harold Mintun, Production Manager of the Pittsburgh *Post-Gazette*, discussed the Teletypesetter. He said this device has a definite place in the newspaper field on those papers having a circulation of 50,000 or less. The composing room must be engineered scientifically to get the full benefit from the

Teletypesetter. He asserted that successful operation of the Teletypesetter helps to clean up composing room practices. Good machines and a good machinist are required.

Walter W. Morey, inventor of the Teletypesetter, discussed delivery of equipment.

## ENGINEERING METHODS

(Continued from Page 30)

Our hand composing facilities are somewhat different. Our men specialize in doing one class of work such as the hand-setting of mathematical or chemical formula, display pages, makeup, collations, tabular headings, etc. With the advent of war we set up our own training section. Incidentally, a good half of the trainees for the past three or four years have been girls—most of them completely unfamiliar with the printing industry. But they have been highly successful in the majority of cases upon proper selection, and as a result we have women setting mathematical formulae, display pages, doing all the principal corrections and alterations on both galleys and pages in a satisfactory manner.

We have under development a revolutionary type case as far as design is concerned. We have thrown out the font system as far as division of amounts of characters is concerned. We have designed type cases with each compartment of the same size laid out on a standard triple-column galley. These are stored in the ordinary 100-galley cabinet as manufactured by Hamilton, on which is mounted a specially designed frame top. With its various features such as adjustability, special indirect lighting, specially designed copyholders, removable bars for accommodating different width galleys, rainspout type gutter for catching the pi, etc., it can be seen that the ordinary corrector with a frame before him mounted on such a galley cabinet would have available directly under him 100 type cases, each one containing more types of characters than the ordinary job case. He would also have well over two and one half as many fonts immediately available to him. To properly accomplish such a feat as this sorts must be cast in such manner that they do not become jumbled up. They are carefully inserted automatically into special boxes with the type all lying in one direction with no loss of space, due to air spaces, between jumbled characters. I'm not certain that I recommend this as a universal treatment for all printing plants. Where, however, a multitude of faces, characters or accents is necessary to each individual, and where the volume of such work is great enough to warrant provision for saving in steps and a minimum of interference with other individuals, such a plan is certainly worthy of consideration.

I believe that the turnover of our work in process is somewhat slower than the average as our authors are scattered over the four corners of the globe. The nature of the material they write is such that recent developments in a given scientific study cause changes along the line before publication. This means that storage with us in the active composing facilities is a major problem.

The actual working storage facilities within easy access of the entire floor are something over 10,000 galleys, about evenly divided between double-column and triple-column. A more or less random location is maintained by the use of location slugs inserted either in the galley lockup or in the page makeup.

### Imposition

Our methods of imposition are probably somewhat standardized with regard to the rest of the industry excepting that we lock all forms with the heads against the bar. This is our own special form of imposition which gives the bolt at the tail instead of the head as is normal, providing more satisfactory and accurate register and a subsequent saving of time in the pressroom.

We use a special chase cut out of a solid piece of steel, so designed that even under 1200 lbs. per sq. in. their deflection will not exceed 1/1000 in. This is true even of the 38 in. by 50 in. chase.

The actual spacing-out material is the customary Challenge furniture and the use of the high-speed quoins. The tension for pressure exerted by these quoins is maintained by a specially designed key which has installed in the shank the type of clutch used by the Black & Decker power tools. The stone-hand cannot exert undue pressure be-


The Royle Router

- A large table mounted on a rigidly constructed column.
- Convenient alignment and tightening of driving belts.
- Running parts designed to reduce vibration.
- Sufficient speed at cutter edge to route fine or rough out without reducing speed.
- Precisely fulcrumed elevating mechanism assures immediate reaction to pressure on the foot pedal.
- Changing cutter heads a matter of seconds.
- Speed and balance are built into Royle Routers.

JOHN ROYLE & SONS

Established 1855

10 Essex Street Paterson 3, N. J.



100% Automatic SLUG SAWING WITH MOHR SAW

Now, more than ever, Mohr saw owners appreciate the important savings in time, made possible by this automatic slug saw. Slugs are cut to any desired length as they are ejected from the linecasting machine. 100% automatic operation. Accurate and speedy.

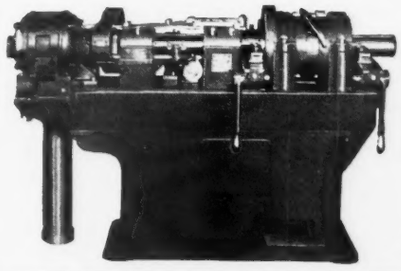
Write for information about the Mohr Measure Control Unit—the quick-changing feature which makes possible instant and precise adjustment of slug length.

MOHR LINO-SAW COMPANY

126 N. Union Avenue Chicago 6, Ill.

**DUPLEX** TUBULAR FINISHING MACHINE

It takes but a few seconds for this combination machine to cut off the tail, bevel both ends, and bore the inside of the plate to correct size.



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BATTLE CREEK MICHIGAN

New York Chicago

*It is NEW — It Is BETTER*

★ **DEEPMOLD CREEPER** ★

The most advanced development in molding creepers—the Deepmold Creeper—molds exceptionally deep bolsters, gives sharp halftone reproductions, will not cut or spread column rules.

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| 22 x 26 x 1/8" | 3.80 ea. |

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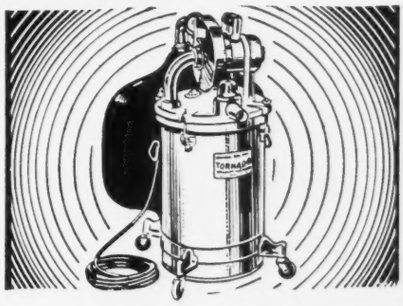

KEEP your plant clean — protect machinery — reduce power costs—salvage scrap — with the TORNADO Portable Industrial Vacuum Cleaner. Powerful. Portable. Picks up dust, dirt, chips, etc. Light weight. Large capacity.

*Write for details and Free Trial Offer!*

TAKE THE DUST OUT OF DUST IN INDUSTRY

With BREUER'S BALL BEARING TORNADO

PORTABLE ELECTRIC BLOWER

**BREUER ELECTRIC MFG. CO.**

5114 N. Ravenswood Ave., Chicago, 40

**TINGUE, BROWN & CO.**

114-120 EAST 23rd ST., NEW YORK 10, N.Y. 723 E. WASHINGTON BLVD., LOS ANGELES 21, CAL.

1227 WABASH AVE., CHICAGO 5, ILLINOIS 507 PETERS STREET, S.W., ATLANTA, GA.

CANADIAN SALES AGENTS ROSS WHITEHEAD & CO. LTD. MONTREAL, CANADA

cause as the limit for which the chase is designed is reached the clutch begins to slip and he cannot tighten beyond this limit. Our forms after imposition are stored in an ordinary type of chase rack with rollers, and are transported to that and to the presses on the customary standard steel tilt-top tables.

### Pressroom Procedure

In the pressroom in the final analysis is where the effort to produce a precise product prior to this and the desire to maintain weather conditions become really a very important factor. We aim principally to operate our presses in pairs and have two sizes of Babcocks, Miller Majors and Miehle Verticals. Shortly to be added to this picture are a new Miller Simplex, a Miehle Horizontal, and a Miller Two-Color.

In the majority of cases, when the form is delivered to the pressroom, it is ready to run. Actually the standard time allowed from stopping the press until the time the next form is running is 25 min. This includes making out the press record form for the dead form coming off, removing the dead form, washing the bed, getting the new form from the composing room, putting it on, planing it down, locking it on the bed, pulling a sheet for pagination OK., setting the feeder, and running. This is a far cry from the old days when a larger portion of the time was spent in so-called makeready. When they go to press our type forms need no spotting-up whatever, except in the rare instance of initial letters and possibly the mixture of worn type from a standing job. Ad forms and an occasional type of halftone form, however, may need some spotup.

Actually with these nine cylinders—that is, four Babcocks, three Majors and two Verticals—running in a normal day with our short-run type of business, 2000 to 3000 copies—may down as low as 400, 600, 700 copies, a great deal of four-color process work, hairline register, we average better than 200,000 impressions per 24 hr. working day. Conditions that help to make this possible are the use of rubber rollers, quite often modern high-dry vapor-set inks which can only be used in an air-conditioned press room, and the specification that the paper mills furnish us paper with a given relative humidity.

**MONOTYPE STRIP OR CONVERTIBLE CASTER**

**Minimum Ten Dollars Reward to first informant of Caster for sale, if we buy.**

**Kitchener Printing Service**

**Box 1, Kitchener, Ontario, Canada**

**POSITION WANTED**

**At liberty—Linotype machinist, all model machines; exceptional; mechanical production manager; foreman; 30 years practical experience all departments. Personal interviews. Box 252 care of Printing Equipment Engineer.**

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**"MULTIFORM"**

**"ELECTROMATIC"**

**"DOMORE" "CLIPPER"**

***SAWS — ROUTERS — DIES***

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**EQUIPMENT FOR PRINTERS**

Mitering machines · Composing sticks · Slug clippers · Band saws · Lead and rule cutters · Newspaper bases, files and racks.

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VACUUM PUMPS

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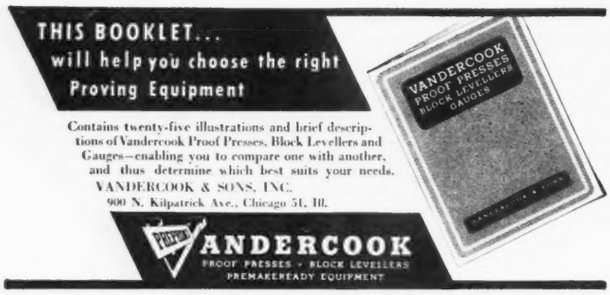
**BAUM FOLDERS**

RUSSELL ERNEST BAUM

615 Chestnut Street Philadelphia, Pennsylvania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Proving Equipment
Contains twenty-five illustrations and brief descriptions of Vandercook Proof Presses, Block Levellers and Gauges—enabling you to compare one with another, and thus determine which best suits your needs.
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PROOF PRESSES · BLOCK LEVELLERS
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POSITION WANTED

**Printer, now employed as General Superintendent in large Chicago plant doing high grade letterpress and offset printing desires position in any capacity in small or medium size city. Can handle sales, management or production and would consider a newspaper or combination shop. If you seek a man with good morals, a non-drinker and an earnest worker it will pay you to investigate. Willing to make salary concessions for pleasant and lower cost living. Box 251, c/o *Printing Equipment Engineer*.**

*USE* **Mercury Rollers and Blankets**

*Built For* **SUPERIOR PERFORMANCE**

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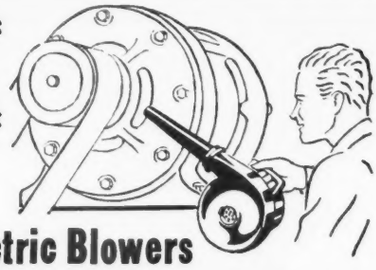
**Cleaner Type**
**Less Loss**
**Better Work**
*when you blow out dust with*



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Powerful 1 h. p. motor blows clean, dry air at 295 m. p. h. Cleans type, cases, presses, thoroly, quickly, at low cost. Convertible into Vacuum Cleaner. Soon pays cost.
*Write for details and Free Trial Offer!*

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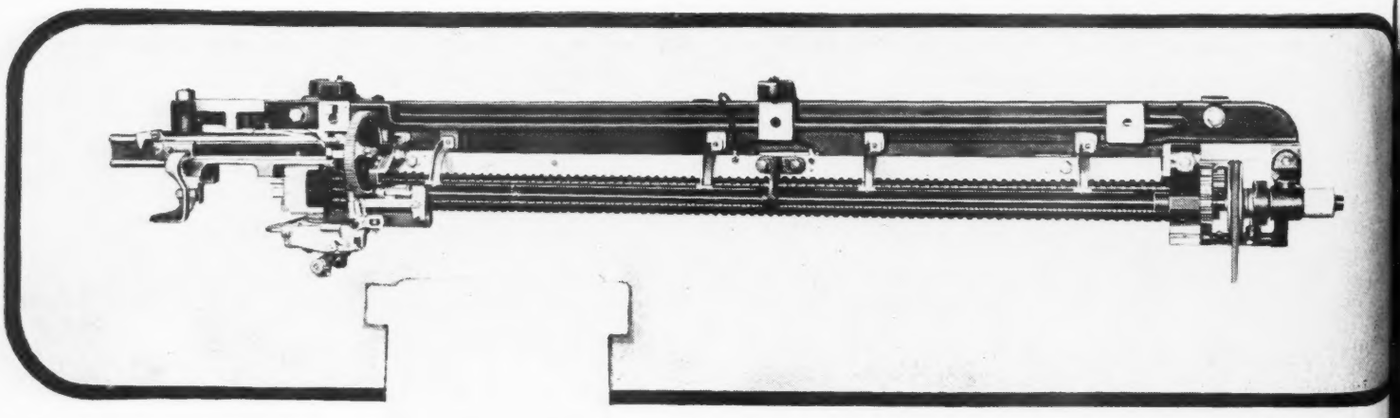
ECONOMY?

ACCURACY?

Look to Intertype, in the years ahead as in years past, for more of the desirable qualities in line-composing machines. Flexibility, for example, means composing-room economy, added convenience for the operator... and you'll never obtain it in greater measure than from Intertype.

Take the Intertype mixer distributor, shown here. It is all you need in order to convert a Universal non-mixer to a mixer whenever the need arises. The conversion can be made in your composing room... at reasonable cost.

Furthermore, Intertype magazine equipment can easily be changed from time to time in order to meet your typesetting requirements.



**LOOK TO**

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